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WORK PLAN ADDENDUM 2 FOR REMEDIAL ACTIONS AT BUILDING 46 SITE 1330 NS  
MAYPORT FL  
2/1/2004  
CH2M HILL



**Work Plan Addendum No. 02  
Remedial Actions at Building 46, Site 1330**

**Naval Station Mayport  
Mayport, Florida**

**Revision No. 00**

**Contract No. N62467-01-D-0331  
Contract Task Order No. 0012**

**Submitted to:  
U.S. Naval Facilities  
Engineering Command  
Southern Division**

**Prepared by:**



**CH2MHILL**

**115 Perimeter Center Place, N.E.  
Suite 700  
Atlanta, GA 30346**

**February 2004**



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**February 2004**

**Prepared/Approved By:**

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Date

**Client Acceptance:**

\_\_\_\_\_  
U.S. Navy Responsible Authority

\_\_\_\_\_  
Date



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  - Preparatory Phase Report
  - Submittal Register
  - Testing Plan Log
- C Site Specific Health and Safety Plan**



# Acronyms and Abbreviations

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AALA	American Association of Laboratory Accreditation
AASHTO	American Association of State Highway and Transportation Officials
ACO	Administrative Contracting Officer
AHA	Activity Hazard Analysis
AFCEE	Air Force Center for Environmental Excellence
BEI	Bechtel Enviromental, Inc.
bls	below land surface
CAR	Contamination Assessment Report
CCI	CH2M HILL Constructors, Inc.
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-term Environmental Action Navy Contractor
CO	Contracting Officer
COC	chain-of-custody
COTR	Contracting Officer's Technical Representative
CTO	Contract Task Order
DPT	direct push technology
ECD	electron capture detector
EISOPQAM	Environmental Investigative Standard Operating Procedure and Quality Assurance Manual
EPA	U.S. Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
GCTLs	Groundwater Cleanup Target Levels
IRA	Interim Remedial Action
IRCDQM	Installation Restoration Chemical Data Quality Manual
J.A. Jones	J.A. Jones Environmental Services Company
LDR	land disposal restriction
$\mu$ V	microvolts
MIP	membrane interface probe
MOP	Monitoring Only Plan
mS/m	microSiemens per meter
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAD	North American Datum
NAS	Naval Air Station
NS	Naval Station
NAVFAC	
EFD SOUTH	Naval Facilities Engineering Command, Southern Division
NIST	National Institute of Standards and Technology
NTR	Navy Technical Representative
NVLAP	National Voluntary Laboratory Accreditation Program
Omega	Omega Environmental Services, Inc.
ORC	Oxygen Release Compound



PAHs	polynuclear aromatic hydrocarbons
PID	photoionization detector
PPE	personal protective equipment
PVC	polyvinyl chloride
QA	Quality Assurance
QC	Quality Control
QCR	Quality Control Report
RCRA	Resource Conservation and Recovery Act
ROICC	Resident Officer in Charge of Construction
RPM	Remedial Project Manager
SA	Site Assessment
SAP	Sampling and Analysis Plan
SCTL	Soil Cleanup Target Levels
SOPs	Standard Operating Procedures
T&D	Transportation and Disposal
TAT	turnaround time
TCL	target compound list
TRPH	Total Recoverable Petroleum Hydrocarbons
TSD	treatment, storage, and disposal
TtNUS	Tetra Tech NUS, Inc.
USACE	U.S. Army Corps of Engineers
UST	underground storage tank



# 1.0 Introduction

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CH2M HILL Constructors, Inc. (CCI) has been contracted by the Department of the Navy, Naval Facilities Engineering Command (NAVFAC EFD SOUTH), to prepare this Work Plan Addendum, under Response Action Contract No. N62467-01-D-0331, Contract Task Order (CTO) No. 0012. The purpose of this Work Plan Addendum is to outline the procedures to be used to perform Remedial Actions at Building 46, Site 1330 (Site 1330) at Naval Station (NS) Mayport, Mayport, Florida.

This Work Plan Addendum is organized into six sections of text and three appendices as follows.

**Section 1.0 Introduction** includes the site history and project objectives.

**Section 2.0 Project Execution Plan** details the required scope of work, project schedule, communications plan, and traffic control plan. A detailed project schedule is provided in Appendix A of this Work Plan Addendum. The NS Mayport Basewide Work Plan provides a brief description of the reporting requirements under this Contract.

**Section 3.0 Sampling and Analysis Plan (SAP)** provides project sample locations, sample collection frequency, and the required laboratory analyses for samples collected during project activities. The NS Mayport Basewide Work Plan (CCI, 1999) and Florida Department of Environmental Protection (FDEP) Standard Operating Procedures (SOPs) outline the sample collection methodology including sample handling, labeling, and required collection of Quality Assurance (QA)/Quality Control (QC) samples.

**Section 4.0 Waste Management Plan** discusses the characterization, disposal, onsite management, and transportation of wastes encountered or generated during project activities. Waste management forms are provided in Appendix B.

**Section 5.0 Environmental Protection Plan** contains site-specific environmental provisions and references the NS Mayport Basewide Work Plan, which contains the Environmental Protection Plan for all work completed at NS Mayport.

**Section 6.0 Quality Control Plan** includes the testing requirements for work described in this Work Plan Addendum. The site-specific project organization for this CTO is also included in this section. The QC attachments (i.e., the submittal register, testing plan and log, etc.) are provided in Appendix B. All other QC information is contained in the NS Mayport Basewide Work Plan, including information on the quality administrators, the project organization for the work to be completed at NS Mayport, and the definable features of work for each project site.

The site-specific health and safety plan that addresses the work described in this Work Plan Addendum is included in Appendix C. Section 5.0 Site Health and Safety Plan of the NS Mayport Basewide Work Plan addresses project-specific health and safety issues for the remedial activities to be completed at NS Mayport.



## 1.1 Site History

### 1.1.1 Site Description

Site 1330 includes Building 46 and extends approximately 200 feet north of the building, west of Building 46 to the taxiway, and east of Building 46 to include Bravo Pier. The site is mostly asphalt covered. A site plan of Site 1330 is provided as Figure 1-1. Building 46, located near the center of the investigation area, is a recreation hall and a laundromat for Navy personnel. Bravo Pier is an operational pier.

Utilities are present in the pier area and include active pressurized steam lines, fuel oil product lines, and oily wastewater oil lines. Cement structures fitted with utility access points or "igloos" dot the pier providing utility service hook-ups such as electricity, petroleum fuel, steam, oily wastewater return, and water to the docked ships. No overhead utilities are present.

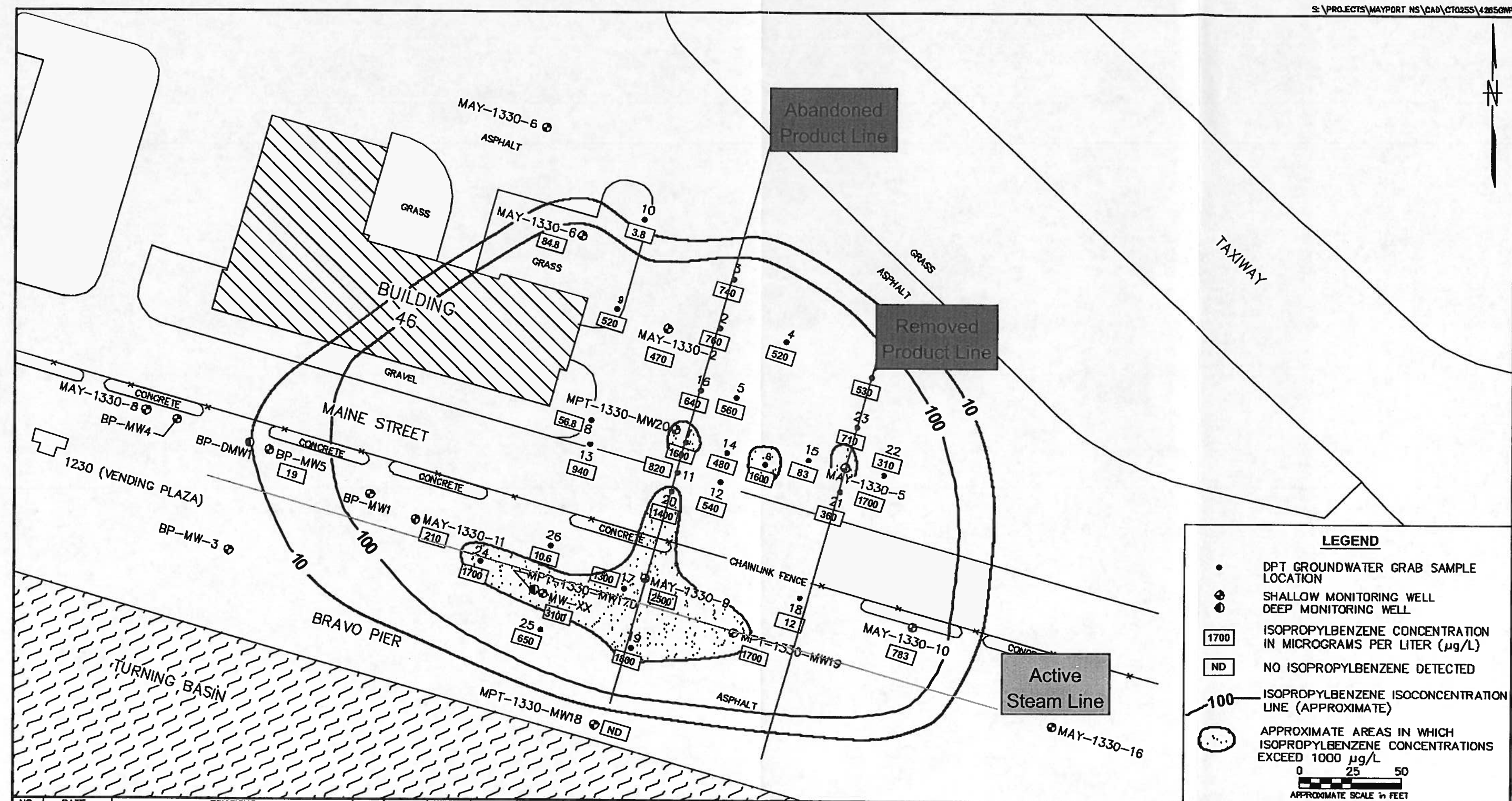
### 1.1.2 Site History

Site 1330 is the location of a former fuel depot that reportedly began operations in 1944. This facility distributed "high octane" and "low octane" fuels to ships and seaplanes docked at the turning basin. The facility consisted of a series of four 25,000-gallon, circular concrete underground storage tanks (USTs) (numbered 39, 39A, 39B, and 40) connected by 3-inch and 4-inch underground piping that ran to the turning basin. The 25,000-gallon tanks were located approximately 200 to 300 feet west of the ship basin near the airport taxiway. A large soil mound that measured 400 feet long by 240 feet wide by 4 feet high apparently covered the 25,000-gallon tanks. According to design drawings, the main portion of these tanks were about 10 feet below land surface (bls).

These tanks and associated piping were allegedly removed sometime in the early 1950s. In 1969, aboveground storage tanks (numbered 1330 and 1331) containing lubrication oils for the ships were installed along the taxiway in the area between the footprints of the former cement USTs. Although this history is not well documented, these tanks reportedly were removed in December 1986 or 1988.

A Contamination Assessment Report (CAR) detailing the fuel distribution area located along the taxiway for Site 1330 was prepared by the U.S. Army Corps of Engineers (USACE) and submitted to FDEP in May 1992. FDEP submitted comments in June 1992 requesting additional assessment work due to the presence of impacted soil and groundwater from the fuel distribution system, which included the Bravo Pier. The requested supplemental work was performed in October 1992, and a CAR Addendum was submitted in December 1992. FDEP submitted comments to the CAR addendum in February 1993 requesting removal of petroleum-contaminated soils and additional information about the Bravo Pier soil contamination discovered during the original CAR. Responses to these comments were addressed in March 1993, stating that a soil removal contract would be initiated for Site 1330 and further investigations would be conducted at the Bravo Pier site. At this time, it was not known that concrete USTs were still in place along the airport taxiway. Two areas of investigation emerged as potential sites for additional investigation, the former USTs near the taxiway and the release at Bravo Pier.





NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES	DRAWN BY	DATE	CONTRACT NO.
							LLK	5/28/03	4265
							CHECKED BY	DATE	APPROVED BY
							COST/SCHED-AREA		DATE
							SCALE		DRAWING NO.
							AS NOTED		Figure 1-1
									REV.
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During November 1993, the Navy contracted Omega Environmental Services, Inc. (Omega) to remove the contaminated soil at the former UST site. It was discovered during the soil removal process that at least one of the tanks (Tank 39) was still in place. This tank was subsequently abandoned in place by Omega. In December 1993, NS Mayport sent an Interim Report to FDEP detailing this discovery of three additional USTs (39A, 39B, and 40) and proposed a plan of action (U.S. Navy, 1993). The tanks were abandoned in place by Bechtel Environmental, Inc. (BEI) and closure reports were submitted in July 1995 to FDEP representing two separate tank closure activities at Site 1330; one for Tank 39 in December 1993 by Omega (Omega, 1993) and one for Tanks 39A, 39B, and 40 by BEI in 1995 (BEI, 1995).

Between August and September 1995, BEI also performed an Interim Remedial Action (IRA) at Bravo Pier. These activities were completed in response to recommendations made during the CAR for Site 1330. During the assessment of Site 1330, pressure tests were performed on fuel lines that were located in the area of contamination. At this time, a small leak was detected from the JP-5 lateral line valve connection. BEI removed approximately 23 tons of impacted soil, an area of 12 feet by 9 feet by 7.5 feet deep. As a result of the work plan limitations, the area of "excessively contaminated" soils was not delineated.

In January 1999, Tetra Tech NUS, Inc. (TtNUS) completed a Site Assessment Report at Bravo Pier (the location of the JP-5 line leak) (TtNUS, 1999), identifying petroleum-impacted groundwater, but no petroleum impacted soils. Isopropylbenzene was the only contaminant detected that exceeded FDEP Groundwater Cleanup Target Levels (GCTLs). As a result, no recommendations of additional measures to assess or remediate the Bravo Pier JP-5 fuel leak were instituted since the release was not determined to be related to the leaking product line. The source of the isopropylbenzene release was considered a separate release.

Between the time of the Bravo Pier SA in 1999 and the tank closures in 1995, FDEP gave final approval of a Monitoring Only Plan (MOP) for Site 1330 that was granted in a letter to the Navy dated 17 February 1997 and was carried out by the USACE. Subsequent sampling and analysis for U.S. Environmental Protection Agency (EPA) Method 602 (including methyl tertiary butyl ethylene [MTBE]) performed during monitoring indicated a continuation and worsening trend of matrix interferences to the target analyses. Isopropylbenzene was later learned to be the laboratory matrix interference, but this was not documented during the initial monitoring of Site 1330. The full VOC parameter, which includes isopropylbenzene, was not analyzed until it became apparent during the TtNUS January 1999 Site Assessment (SA) that isopropylbenzene was also impacting Site 1330, which was located across Maine Street to the west.

In 2003 TtNUS conducted Site Assessment Addendum activities and reported that the areas of isopropylbenzene identified with the greatest groundwater concentrations are located at the Bravo Pier and near the existing product pipe located in the parking area of Building 46.

An isopropylbenzene plume delineation map is provided as Figure 1-1. Isopropylbenzene concentrations have remained mostly consistent since monitoring of the compound began in 1998.



## 1.2 Project Objectives

The project objective outlined by this Work Plan Addendum is to collect soil and groundwater analytical data to supplement the data collected by TtNUS. The collected data will then be utilized to determine any potential source areas of isopropylbenzene contamination, the locations for installation of any necessary additional monitoring wells, and develop design parameters for any necessary groundwater remediation (i.e., Oxygen Release Compound [ORC] injection).

Additional Work Plan Addenda will be submitted to outline future work at the site (i.e., source area removal, monitoring well installation, and ORC injection design).



## 2.0 Project Execution Plan

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The scope of work, project schedule, communications plan, and traffic control plan are described in this section.

### 2.1 Scope of Work

The activities associated with the scope of work outlined in this Work Plan Addendum are as follows:

- Mobilization and site preparation
- Utility location
- Source area investigation utilizing direct push technology (DPT)/membrane interface probe (MIP)
- Site survey
- Demobilization
- Preparation and submittal of a Source Area Investigation Summary Report

#### 2.1.1 Mobilization and Site Preparation

This task will consist of the mobilization of personnel and equipment to the work site and the establishment of temporary facilities, consisting of portable sanitary facilities, a decontamination area, site refuge area, and equipment laydown area. Project management and scheduling activities, including contractor coordination, will be achieved from the CCI office located at former Naval Air Station (NAS) Cecil Field.

Prior to the commencement of work, site controls including construction barricades and security fencing will be installed and the decontamination area and equipment laydown area will be prepared. CCI will coordinate with Sunshine State One Call of Florida, NS Mayport Facilities and Engineering Division, and the Resident Officer in Charge of Construction (ROICC) to complete a site utility survey, acquire utility layout plans of the area, and complete the excavation permit. Utilities in the work areas will be marked with paint and stakes, as appropriate. In addition, the progress of subsurface work will be continuously monitored for evidence of obstructions.

Any damage to underground utilities or subsurface structures will be immediately reported to the ROICC and subsequently repaired by CCI via methods approved by the ROICC.

#### 2.1.2 Source Area Investigation

The proposed source area investigation includes using a DPT rig, MIP, onsite mobile laboratory, and offsite fixed base laboratory. The collected data will supplement the data collected by TtNUS and will be utilized to determine potential source areas of



isopropylbenzene contamination requiring removal; the horizontal and vertical extents of contaminated soil; the horizontal and vertical extents of contaminated groundwater; and locations for installation of any necessary additional monitoring wells. The investigation will initially focus along the length of the former fuel distribution line as shown on Figure 1-1 to determine possible source areas with additional borings/samples completed to better define the vertical and horizontal extents of contaminated groundwater. Initially, a DPT rig with MIP will be utilized to provide the subsurface lithology and contaminant distribution and to determine the locations for soil and groundwater sample collection. Following the MIP investigation, a DPT rig with soil and groundwater sample collection equipment and an onsite mobile laboratory will be used to collect and analyze soil and groundwater samples necessary to determine MIP result/laboratory result correlation, installation locations for additional monitoring wells, and design parameters for an ORC injection.

### **MIP Operations**

The source area investigation will consist of approximately 50 to 60 MIP points. The overall strategy will be to characterize the magnitude and extent of isopropylbenzene contamination in soil and groundwater by using the MIP instrument.

Each MIP point will be advanced in the formation, beginning at ground surface and terminating at approximately 40 to 45 feet bls. The MIP will be advanced and response from the electron capture detector (ECD), photoionization detector (PID), and soil conductivity detector will be obtained and recorded at each linear foot of the formation.

This method will be used simultaneously to evaluate and correlate the results obtained from each detector. To evaluate the concentration of isopropylbenzene in the formation, a graph will be generated of the ECD and PID response in microvolts ( $\mu V$ ) versus depth in feet. In addition, a graph will be generated of the soil conductivity response in microSiemens per meter (mS/m) versus depth in feet.

### **Soil and Groundwater Sampling**

Following the MIP investigation, approximately 25 to 30 groundwater samples and 5 to 10 soil samples will be collected from the MIP data points generated during the investigation. The samples will be delivered to an onsite laboratory and analyzed for EPA SW-846 Method 8260B in accordance with Section 3.0 Sampling and Analysis Plan of this Work Plan Addendum. In addition, one duplicate soil and groundwater sample will be collected every other day and sent to an offsite fixed based laboratory for analysis to verify QC for the onsite mobile laboratory.

The objective is to collect sufficient soil and groundwater confirmatory samples to correlate the MIP and analytical results and generate a 3-dimensional view of the subsurface lithology and contaminant concentrations.

If no possible source areas of isopropylbenzene contamination are encountered during the source area investigation, soil samples will be collected for bench scale treatability studies to determine the feasibility of future groundwater treatment alternatives (i.e., ORC or equivalent). If a possible source area of isopropylbenzene is encountered during the source area investigation that will require a removal action, soil samples will be collected following



the removal action to determine the feasibility of future groundwater treatment alternatives. In this case, the sampling protocols will be outlined in that respective Work Plan Addendum.

### **2.1.3 Decontamination**

Personnel and equipment will be properly decontaminated to remove all contamination that may be adhering to personnel or equipment as a result of remedial activities. Any water accumulated during the decontamination process will be containerized in 55-gallon drums; sampled in accordance with Section 3.0 Sampling and Analysis Plan of this Work Plan Addendum; and managed, transported, and disposed in accordance with Section 4.0 Waste Management Plan of this Work Plan Addendum. Decontamination of personnel and equipment will be performed in accordance with the site-specific Health and Safety Plan provided in Appendix C and the applicable provisions of 29 Code of Federal Regulations (CFR) 1910.120.

### **2.1.4 Site Restoration**

Each DPT/MIP point will be filled to the ground surface with a bentonite grout slurry immediately following boring completion.

Areas disturbed during work at the site will be restored to previous condition. Restoration of disturbed areas of asphalt or concrete will include compaction to prevent subsidence, followed by the replacement of like-material asphalt or concrete to restore the site to its original condition. All other areas, structures or utilities affected by site operations will be replaced or repaired.

### **2.1.5 Site Survey**

On completion, Site 1330 will be surveyed by a Florida-registered professional land surveyor and a site plan prepared. The site plan will document surface structure locations, sample locations, locations of buried utilities, monitoring well locations, and any deviations encountered.

All survey data will conform to the Tri-Service Spatial Data Standards. Horizontal controls for graphic and non-graphic information are Mercator Projection, GRS 80, State Plan Coordinate System, North American Datum 1983, Lambert Zones 1 through 6 (or appropriate zone for region to be mapped). Vertical controls are Mean Sea Level, North American Vertical Datum, 1988.

### **2.1.6 Demobilization**

During demobilization, temporary facilities, utilities, and equipment will be removed from the site. In addition, any debris or solid waste material remaining from construction activities will be removed and properly disposed of offsite in accordance with Section 4.0 Waste Management Plan of this Work Plan Addendum.

### **2.1.7 Source Area Investigation Summary Report**

A Source Area Investigation Summary Report will be prepared to document the activities performed and will include:



- Introduction
- Summary of Action
- Complete Set of Soil and Groundwater Analytical Results and MIP Reports
- 3-Dimensional Visualization of Results
- Data Correlation and Report
- Site Survey
- Site Photographs

## 2.2 Project Schedule

The major project activities and estimated durations for each are outlined below.

- |  |         |
|--|---------|
| • Pre-construction meeting/Submittal Preparation/Reviews | 4 weeks |
| • Source Area Investigation                              | 4 weeks |
| • Site Survey  | 1 week  |
| • Source Area Investigation Summary Report               | 8 weeks |

CCI anticipates the total project duration (from pre-construction conference through submittal of the final completion report) will be approximately 17 weeks. This proposed schedule might vary depending on the actual conditions encountered in the field. Appendix A provides a schedule for the work to be performed.

## 2.3 Communications Plan

A communication matrix outlining the lines of communications for Southern Division, NAVFAC EFD SOUTH and CCI is presented in Table 2-1. Table 2-2 provides a project personnel directory.

**TABLE 2-1**  
Communications Matrix

CCI Position	Navy Direct Report
Ray Tyler, Executive Sponsor	Eva Clement, CO
R. Scott Newman, Program Manager	Jimmy Jones, COTR Richard Stanley, ACO
Scott Smith, Senior Project Manager	Jimmy Jones, COTR Richard Stanley, ACO
Michael Halil, CTO Project Manager	Beverly Washington, RPM Larry Blackburn, NTR/ROICC Cheryl Mitchell, NS Mayport

CO – Contracting Officer  
ACO – Administrative Contracting Officer  
NTR – Navy Technical Representative  
RPM – Remedial Project Manager  
COTR – Contracting Officer's Technical Representative



**TABLE 2-2**  
Project Personnel Directory

<b>Contact</b>	<b>Company</b>
R. Scott Newman, Program Manager	CH2M HILL Constructors, Inc.
Scott Smith, Senior Project Manager	115 Perimeter Center Place, N.E.
Joe Giandonato, Contracts Administration Manager	Suite 700
Richard Rathnow, Health and Safety Manager	Atlanta, GA 30346-1278
Theresa Rojas, QA/QC Manager	770/604-9095
Michael Halil, Project Manager Jeffery Marks, Project Engineer Garnet McCurdy, Site Superintendent Dave Keul, Project QA/QC Manager Bruce Johnson, Project Health and Safety Manager	J.A. Jones Environmental Services Company
	6219 Authority Avenue
	Jacksonville, FL 32221
	904/777-4812
Eva Clement, CO	Southern Division NAVFAC EFD SOUTH
	P.O. Box 190010
	North Charleston, SC 29419-9010
	843/820-5518
Richard Stanley, ACO	As above
	843/820-5939
Jimmy Jones, COTR	As above
	843/820-5544
Beverly Washington, RPM	As above
	843/820-5584
Larry Blackburn, NTR/ROICC	Southern Division NAVFAC EFD SOUTH
	Resident Officer in Charge of Construction
	P. O. Box 139, Building 13
	NAS Jacksonville, FL 32212-0139
	904/542-5571, ext. 260
Cheryl Mitchell, NS Mayport Environmental Manager	Staff Civil Engineer Environmental Division
	Building 1538
	NS Mayport, FL 32227
	904/270-6730

## 2.4 Traffic Control Plan

Traffic control will be the responsibility of the CCI Project Superintendent. CCI will minimize disturbance to NS Mayport traffic patterns during project activities. CCI will consult with onsite personnel to evaluate site access, placement of equipment, and traffic flow to minimize the impact of this work to site operations.



## 3.0 Sampling and Analysis Plan

This Sampling and Analysis Plan (SAP) describes CCI's tasks and responsibilities with respect to the sampling and analysis associated with the work effort described in Section 2.0 of this Work Plan Addendum. CCI intends this document to be a site-specific guide for use by the field team while performing the project-required sampling and analysis. Any changes to the activities described in this SAP must be documented as an addendum to this SAP and approved by the Project Manager and Project Chemist.

Samples will be collected in accordance with the EPA Region IV Environmental Investigative Standard Operating Procedures and Quality Assurance Manual (EISOPQAM), 1996, and 1997 revisions.

The sampling team will be qualified under the Navy Installation Restoration Chemical Data Quality Manual (IRCDQM), 1999 sampling requirements. FDEP SOPs will be followed for each sampling task.

A Navy-, USACE-, or Air Force Center for Environmental Excellence- (AFCEE) and Florida-approved laboratory will be used for all sample analyses.

### 3.1 Data Quality Levels for Measurement Data

The data quality levels for each sampling task described above are listed in Table 3-1. The sampling events, the sampling and analytical requirements, along with the required level of QC and data packages are listed in Table 3-2. The quantitation, project action, accuracy, precision, and completeness limits by which the data will be evaluated will be provided by the selected laboratory and approved by CCI's Quality Assurance Chemist. All analytical data will be submitted by both hard copy and electronic files.

A Navy-, USACE-, or AFCEE-, and FDEP-approved laboratory will be used for all sample analyses. In addition, the laboratory will also follow FDEP SOPs.

**TABLE 3-1**  
Data Quality Levels

Sampling Activity	Data Quality Level Category
DPT Groundwater Sampling (onsite laboratory analyses)	Screening
DPT Groundwater Sampling (offsite laboratory analyses)	Definitive
DPT Soil Sampling (onsite laboratory analyses)	Screening
DPT Soil Sampling (offsite laboratory analyses)	Definitive
Waste characterization of the soils and aqueous waste (offsite laboratory analyses)	Definitive



**TABLE 3-2**  
Sampling and Analysis Summary Table

Sample Task	Sample Point	Matrix	Sampling Frequency	Approx Sample No	Sampling Method (Note 1)	Sampling Equipment (Note 1)	TAT (Note 2)	Data Package Reqmnt	Required Analysis	Analytical Method	Holding Time	Sample Preservtn3	Containers
<b>DPT Groundwater Sampling</b>													
DPT Groundwater Sampling-Onsite Laboratory	DPT Locations Based on MIP Results	Water	Once	30 + 3 dup + 2 MS/MSD	Grab	DPT, Peristaltic Pump; Teflon Tubing	24 hrs	CCI Level A Screening	TCL Volatiles	8260B	14 day	HCl pH< 2; Cool to 4°C	(2) 40 mL vials
	Pre-Equipment Blank	Water	1 per 10 samples	3	Prepared in Field	Analyte-free water, SS funnel	24 hrs	CCI Level A Screening	TCL Volatiles	8260B	14 day	HCl pH< 2; Cool to 4°C	(2) 40 mL vials
	Post-Equipment Blank	Water	1 per 10 samples	3	Prepared in Field	Analyte-free water, SS funnel	24 hrs	CCI Level A Screening	TCL Volatiles	8260B	14 day	HCl pH< 2; Cool to 4°C	(2) 40 mL vials
	(Taken only if equipment cleaned in the field)												
	Trip Blank	Water	1 per cooler containing volatile samples	3	Prepared by Lab	N/A	24 hrs	CCI Level A Screening	TCL Volatiles	8260B	14 days	0.025% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , HCl pH<2; Cool to 4°C	(2) 40 ml vials
DPT Groundwater Sampling-Offsite Laboratory	DPT Locations Based on MIP Results	Water	Every other day that onsite sampling is performed	5 + 1 MS/MSD	Grab	DPT, Peristaltic Pump; Teflon Tubing	24 hrs	CCI Level C	TCL Volatiles	8260B	14 day	HCl pH< 2; Cool to 4°C	(2) 40 mL vials
	Trip Blank	Water	1 per cooler containing volatile samples	5	Prepared by Lab	N/A	24 hrs	CCI Level C	TCL Volatiles	8260B	14 days	0.025% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , HCl pH<2; Cool to 4°C	(2) 40 ml vials

Notes:

- 1) In accordance with FDEP SOPs
- 2) TAT is in calendar days



**TABLE 3-2**  
Sampling and Analysis Summary Table

Sample Task	Sample Point	Matrix	Sampling Frequency	Approx Sample No	Sampling Method (Note 1)	Sampling Equipment (Note 1)	TAT (Note 2)	Data Package Reqmnt	Required Analysis	Analytical Method	Holding Time	Sample Preservtn3	Containers
<b>DPT Soil Sampling</b>													
DPT Soil Sampling- Onsite Laboratory	DPT Locations Based on MIP Results	Soil	Once	10 + 1 dup + 1 MS/MSD	Grab	DPT rig, Syringes, Prepared Vials,	24 hrs	CCI Level C	TCL Volatiles	8260B	14 day	Cool to 4°C	Disposable syringes, (3) Prepared 40 ml vials
	Pre-Equipment Rinsate Blank	Water	1 per set of pre-cleaned equipment (10%)	1 (or as needed)	Prepared in Field	Analyte-free water, SS funnel	24 hrs	CCI Level A Screening	TCL Volatiles	8260B	14 days	HCl pH< 2; Cool to 4°C	(2) 40 ml vial
	Post-Equipment Rinsate Blank	Water	1 per set of field-cleaned equipment (10%)	1 (or as needed)	Prepared in Field	Analyte-free water, SS funnel	24 hrs	CCI Level A Screening	TCL Volatiles	8260B	14 days	HCl pH< 2; Cool to 4°C	(2) 40 ml vial
	Trip Blank	Water	1 Per cooler containing volatile samples	3	Prepared by Lab	(2) 40 mL vials	24 hrs	CCI Level A Screening	TCL Volatiles	8260B	14 day	HCl pH< 2; Cool to 4°C	(2) 40 mL vials
DPT Soil Sampling- Offsite Laboratory	DPT Locations Based on MIP Results	Soil	Every other day that onsite sampling is performed	5 + 1 MS/MSD	Grab	DPT rig, Syringes, Prepared Vials,	24 hrs	CCI Level C	TCL Volatiles	8260B	14 day	Cool to 4°C	Disposable syringes (3) Prepared 40 ml vials
	Trip Blank	Water	1 Per cooler containing volatile samples	5	Prepared by Lab	(2) 40 mL vials	24 hrs	CCI Level C	TCL Volatiles	8260B	14 day	HCl pH< 2; Cool to 4°C	(2) 40 mL vials

Notes:

- 1) In accordance with FDEP SOPs
- 2) TAT is in calendar days



**TABLE 3-2**  
Sampling and Analysis Summary Table

Sample Task	Sample Point	Matrix	Sampling Frequency	Approx Sample No	Sampling Method (Note 1)	Sampling Equipment (Note 1)	TAT (Note 2)	Data Package Reqmnt	Required Analysis	Analytical Method	Holding Time	Sample Preservtn3	Containers
<b>Waste Characterization Sampling</b>													
Disposal of Aqueous Waste from purge water, etc.	Aqueous disposal material	Water	One per 6 drums or one per container or as required by disposal facility	1	Grab	Drum thief or dip jar	7 days	CCI Level B	TCL Volatiles	8260B	14 days	HCl pH< 2; Cool to 4°C	(2) 40 ml vials
									TCL Semi-volatiles	8270C	7 days ext; 40-days analysis	Cool to 4°C	(2) L amber glass
									TCL Pesticides	8081A	7 days ext; 40-days analysis		(2) L amber glass
									Herbicides	8151A	7 days ext; 40-days analysis		(2) L amber glass
									TCL PCBs	8082	7 days ext; 40-days analysis		(2) L amber glass
									TAL Metals	6010B/7470A	80 days; Hg = 28 day	HNO <sub>3</sub> pH< 2; Cool to 4°C	(1) 500ml HDPE
									Reactivity	Chapter 7.3	ASAP	Cool to 4°C	(2) 1 L amber glass
									Ignitability	1010/1020A	ASAP		
									Corrosivity	9040B	ASAP		
Disposal of Solid Wastes	Solid disposal material	Solids	One per 6 drums or one per container or as required by disposal facility	1	Grab	SS Auger, SS Spoons, SS Bowl	7 days	CCI Level B	TCLP Volatiles	1311/8260B	14 day TCLP extr; 14 day analysis	Cool to 4°C	(1) 4 oz amber glass
									TCLP Semi-Volatiles	1311/8270C	14 day TCLP extr; 7 day extr; 40 day analysis	Cool to 4°C	(1) 16 oz amber glass
									TCLP Pesticides	1311/8081A	14 day TCLP extr; 7 day extr; 40 day analysis		
									TCLP Herbicides	1311/8151A	14 day TCLP extr; 7 day extr; 40 day analysis		
									TCLP Metals	1311/6010B, 7470A	6 month TCLP extr; 6 month analysis Hg: 28 day TCLP extr; 28 day analysis	Cool to 4°C	(1) 16 oz amber glass
									Ignitability	1030	ASAP	Cool to 4°C	(1) 500ml HDPE
									Corrosivity	9045A	ASAP		
									Reactivity	Chapter 7.3	ASAP		

Notes

- 1) In accordance with FDEP SOPs
- 2) TAT is in calendar days



## 3.2 Sampling Objectives

The sampling objectives for this project are as follows:

- Collect groundwater samples using DPT at locations determined from the MIP activities for target compound list (TCL) volatile analysis.
- Collect soil samples using DPT at locations determined from the MIP activities for TCL volatile analysis.
- Collect soil/water samples for waste characterization of excess soils, decontamination water, purge water, or other waste generated by DPT sampling activities, as necessary.

## 3.3 Groundwater Sampling and Analyses

Groundwater samples will be collected based on MIP results using DPT and delivered to an onsite mobile laboratory. It is estimated that 25 to 30 samples will be collected for onsite laboratory analysis. In addition, samples will be split every other day and shipped to an offsite laboratory for QC of the onsite mobile laboratory (A minimum of 20 percent of total samples collected will be split and analyzed at the offsite laboratory). The same groundwater sample collection methodology will be applied to both onsite and offsite laboratory samples. All samples will be analyzed for TCL Volatiles via EPA Method 8260B.

DPT will be used to collect groundwater samples. The groundwater samples will be collected using a low-flow pump to minimize both groundwater agitation and sample turbidity. Groundwater will be purged for a period of 30 to 60 seconds prior to sampling.

Groundwater will be purged prior to sample collection using the following low-flow purging procedure:

1. Decontaminate DPT sampling equipment prior to purging and between samples. New sample tubing should be used to collect each sample.
2. Record the sample location, date, and time in the logbook. Commence purging.
3. Pumping rates should be maintained as low as possible. The anticipated pumping rate is 0.15 to 0.25 gallon per minute. If possible record the pumping rate in the logbook.

Groundwater samples will be collected following the purging period of 30 to 60 seconds. Sample containers will have Teflon®-lined screw caps. Headspace in the volatile sample container must be minimized by filling the sample jar until a positive meniscus is present. The sample label, chain-of-custody, and logbook will contain the sample identification, sample date, sample preservative, required analyses, name/initials of the sampler, and NS Mayport reference. The samples will be placed in a cooler packed on ice with the chain-of-custody. The cooler will then be sealed with custody seals and delivered to the onsite laboratory or ship by overnight delivery to the offsite laboratory. Requirements for sample collection, preservation, and analysis are provided in Table 3-2. Samples will be delivered to the laboratory as soon as possible to allow the samples to be analyzed within the specified holding times. Requirements for QA/QC samples are provided in Table 3-2.



A CCI Level A data package will be required with the appropriate QC samples from the onsite mobile laboratory. A CCI Level C data package will be required with appropriate QC samples from the offsite laboratory. All analytical data will be submitted by both hard copy and electronic files.

Decontamination water and purge water will be placed directly into 55-gallon drums and will be characterized in accordance with this SAP and disposed of in accordance with Section 4.0 Waste Management Plan.

### **3.4 DPT Soil Sampling**

Soil samples will be collected based on MIP results using DPT and delivered to an onsite mobile laboratory. It is estimated that 5-10 soil samples will be collected for onsite laboratory analysis. In addition, samples will be split every other day and shipped to an offsite laboratory (A minimum of 20 percent of total samples collected will be split and analyzed at the offsite laboratory). The same sample collection methodology will be applied to both onsite and offsite laboratory samples. All samples will be analyzed for TCL volatiles via EPA Method 8260B. Samples will be collected in the following manner and analyzed in accordance with Table 3-2.

1. Using the DPT rig obtain a core from the appropriate depth to be sampled.
2. Remove the core from DPT sampling device.
3. Open one of the disposable syringes.
4. Push the syringe directly into the center of the core, and fill to the 5-cc mark.
5. Take the syringe and push the contents into one of the three vials received from the laboratory.
6. Immediately cap the vial (note: ideally the entire operation; filling the syringe, pushing it into the vial, and capping the vial should not take more than 1 minute).
7. Repeat the process for the other two vials.
8. Label the vials.
9. Place in cooler for shipment to the laboratory.
10. The sample label, chain-of-custody and logbook will contain the sample identification, sample date, sample preservative, required analyses, name/initials of the sampler, and NS Mayport reference.
11. Place the samples in a cooler packed on ice with the chain-of-custody. Seal the cooler with custody seals and deliver to the onsite laboratory or ship by overnight delivery to the offsite laboratory.

Excess soil and decontamination water will be placed directly into 55-gallon drums and will be characterized in accordance with this SAP and disposed of in accordance with Section 4.0 Waste Management Plan.



## **3.5 Waste Characterization and Incidental Wastestream Sampling and Analyses**

### **3.5.1 Soil/Solids Characterization**

Waste characterization samples will be collected to evaluate the handling and transportation and disposal (T&D) requirements of any contaminated soil accumulated during DPT activities. Soil/solids characterization samples will be collected from the drums prior to disposal. One composite sample will be collected. Soil samples will be collected as follows and analyzed for the parameters listed in Table 3-2.

1. Bore down in drum approximately 6 to 12 inches and fill volatile sample container. Container must be packed and have no headspace.
2. Continue to collect several spoonfuls of the soil into a stainless steel bowl.
3. Homogenize the sample by the quartering techniques using the stainless steel spoon.
4. Fill the appropriate sample jars approximately three-fourths full with the homogenized sample.
5. Close the jars, label, and package the samples for shipment to the laboratory.

A CCI Level B package will be required along with appropriate QC samples for the required waste characterization and incidental wastestream samples. All analytical data will be submitted by both hard copy and electronic files.

### **3.5.2 Water Characterization**

Waste characterization samples will be collected to evaluate the handling and T&D requirements of generated decontamination water, purge water, and any other miscellaneous collected water. Decontamination water will be segregated for analyses. Water characterization samples will be collected from the drums prior to disposal. One composite sample will be collected. Water samples will be collected as follows and analyzed for the parameters listed in Table 3-2.

A sample will be collected from the drums using either a dip jar or bailer. The sample containers for volatiles analyses will be filled first. The 40-milliliter vials will be filled so that there is no headspace in each vial. The sample containers for the remaining analyses will then be filled.

A CCI Level B package will be required along with appropriate QC samples for the required waste characterization and incidental wastestream samples. All analytical data will be submitted by both hard copy and electronic files.

## **3.6 Equipment Decontamination**

Sampling methods and equipment have been selected to minimize decontamination requirements and the possibility of cross-contamination. The following procedures will be



used for all sampling equipment used to collect routine samples undergoing trace organic or inorganic analyses.

Reusable sampling equipment will be decontaminated before the initial sample is collected and between sampling locations using the following procedure:

1. Clean with potable water and Alconox® or equivalent laboratory grade detergent using a brush, if necessary, to remove particulate matter and surface films.
2. Rinse thoroughly with potable water.
3. Rinse thoroughly with analyte-free water.
4. Rinse thoroughly with isopropanol (pesticide-grade). Do not rinse polyvinyl chloride (PVC) or plastic items with isopropanol.
5. Rinse thoroughly with organic/analyte-free water.
6. Allow equipment to air dry completely.

### 3.7 Sample Documentation

Sampling documentation will include the following:

- Numbered Chain-of-Custody (COC) Reports
- Sample Log Book which includes the following information:
  - Name of laboratories and contacts to which the samples were sent, turnaround time (TAT) requested, and data results, when possible
  - Termination of a sample point or parameter and reasons
  - Unusual appearance or odor of a sample
  - Measurements, volume of flow, temperature, and weather conditions
  - Additional samples and reasons for obtaining them
  - Levels of protection used (with justification)
  - Meetings and telephone conversations held with the Southern Division, NTR, regulatory agencies, project manager, or supervisor
  - Details concerning any samples split with another party
  - Details of QC samples obtained
  - Sample collection equipment and containers, including their serial or lot numbers. Details of QC samples obtained
  - Field analytical equipment, and equipment utilized to make physical measurements will be identified



- Calculations, results, and calibration data for field sampling, field analytical, and field physical measurement equipment
- Property numbers of any sampling equipment used, if available
- Sampling station identification
- Date and Time of sample collection
- Description of the sample location
- Description of the sample
- Sampler(s)' name(s) and company
- How the sample was collected
- Diagrams of processes
- Maps/sketches of sampling locations
- Weather conditions that may affect the sample (e.g., rain, extreme heat or cold, wind, etc.)
- Sample Labels
- Custody Seals (minimum of two on each shipping container)

### 3.8 Field Quality Control

Field duplicate samples, equipment blanks, trip blanks, and matrix spike/matrix spike duplicates (MS/MSD) will be collected at the frequency specified in Table 3-2. Field QC samples are not required for disposal sampling.

### 3.9 Analytical Methods

Samples will be collected for analytical methods summarized in Table 3-2.

Preliminary analytical results will be faxed to Bonnie Hogue at the following fax number per the turn-around-times listed in Table 3-2 from day of sample receipt. The final hardcopy data and electronic file will be delivered to Melissa Aycock within 14 days of sample receipt.

Bonnie J. Hogue  
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Atlanta, GA 30346  
770-604-9182 ext. 263  
EFax: 678-579-8106  
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Melissa Aycock  
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115 Perimeter Center Place, Suite 700  
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(770) 604-9182 ext. 614  
EFax: (678) 579-8135  
[maycock@ch2m.com](mailto:maycock@ch2m.com)



## 4.0 Waste Management Plan

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The Waste Management Plan describes the waste management requirements and procedures for remediation activities at Site 1330 located at NS Mayport, Mayport, Florida.

The work to be performed at the site consists of a source area investigation that includes utilization of a DPT rig, MIP technology, onsite mobile laboratory, and offsite fixed base laboratory to collect supplemental analytical data.

The following materials or wastes may be generated and/or managed during these activities:

- Aqueous waste (spent water samples and decontamination water)
- Soils/Drill cuttings
- Asphalt and/or concrete
- Spent or contaminated sampling equipment
- Personal protective equipment (PPE)
- Uncontaminated general construction debris (such as caution tapes, barricades, signs, packing materials).

Waste generated from the analysis performed through the onsite laboratory will be managed in accordance with the site-specific Health and Safety Plan provided in Appendix C and applicable regulations.

### 4.1 Waste Characterization

Wastes will be characterized according to the SAP in Section 3.0 of this Work Plan Addendum. Waste characterization information typically will be included on a waste profile form provided by the offsite facility. CCI will provide analytical data from the waste characterization sampling and analysis event.

Isopropylbenzene was the only groundwater contaminant detected in excess of FDEP GCTLs.

It is assumed that petroleum-contaminated soil that fails the Toxicity Characteristic test for the organic compounds associated with the D018 through D043 waste codes is not hazardous waste because it is a result of petroleum cleanup activities (40 CFR 261.4(b)(10)). However, petroleum contaminated soil that exhibits the Toxicity Characteristic for metals (D004 – D0011) or pesticides (D012 – D017) would still be managed as hazardous wastes.

Typically, uncontaminated wastes such as general construction debris will be characterized using process knowledge and generally will be classified as municipal solid waste.



## 4.2 Waste Profile

Waste characterization information for wastes will be documented on a waste profile form provided by the offsite treatment or disposal facility as part of the waste acceptance process. The profile will be reviewed and approved by the CCI Waste Coordinator prior to submission to the Navy for generator signature. Navy personnel will provide generator certification and/or signature, if required. Signed profile will then be submitted to the disposal facility for acceptance approval.

The profile typically requires the following information including but not limited to:

- Generator (Navy) information including name, address, contact, and phone number
- Site name including street/ mailing address
- Process generating waste (e.g., Site 1330 source area investigation)
- Source of contamination (e.g., Isopropylbenzene contaminated groundwater)
- Historical use for area (e.g., former fuel depot)
- Waste composition (e.g., 95 percent soil, 5 percent debris)
- Physical state of waste (e.g., solid, liquid, etc.)
- Applicable hazardous waste codes

A facility approved copy of the waste profile will be received prior to scheduling of offsite transportation of the waste.

## 4.3 Waste Management

### 4.3.1 Waste Storage Time Limit

Hazardous wastes will be removed from the site within 90 days from generation. Additionally, as required under FAC 62-770, petroleum-contaminated soil (including excessively contaminated soil) will not be stored or stockpiled on-site for more than 60 days. However, petroleum-contaminated soil (including excessively contaminated soil) may be containerized in watertight drums and stored onsite for 90 days, after which time proper treatment or proper disposal of the contaminated soil shall occur.

The debris (concrete and asphalt) will be cleared of all soil and considered non-hazardous construction debris and will be removed from the site as soon as possible but before 90 days has expired.

The wastewater from sampling and decontamination activities will be containerized and sampled. The wastewater is considered non-hazardous petroleum contaminated water and will be removed from the site as soon as possible.

### 4.3.2 Labels

All containers/drums, tanks, and roll-off boxes will have clearly visible labels.

If analytical results indicate that the container contents are hazardous, the tank (or other container if the contents are transferred) will be labeled with a pre-printed "Hazardous Waste" label, which includes:



- Accumulation start date
- Generator Name: U.S. Navy
- EPA ID number for site
- Waste codes

For containers of less than 110 gallons, the manifest number must be on the label before transporting.

If analytical results indicate that the container contents are non-hazardous, the tank (or other container if the contents are transferred) will have pre-printed "Non-Hazardous Waste" labels that include the following information:

- Accumulation start date
- Generator Name: U.S. Navy
- Site EPA ID Number
- Waste-specific information (e.g., tank sludge)

Until the container contents have been characterized and classified, the pre-printed "Analysis Pending" label or "Waste Material" (or an equivalent label). This waste label will contain the equivalent information provided on a Hazardous Waste label, including:

- Accumulation start date
- Generator Name: U.S. Navy
- Site EPA ID Number
- Waste-specific information (e.g., petroleum contaminated soil)

### **4.3.3 Waste Management Area Requirements**

Hazardous wastes will be segregated from non-hazardous wastes. Additionally, incompatible wastes (e.g., flammable and corrosive wastes) will be segregated. Wastes of the same matrix, contamination, and the same source may be aggregated to facilitate storage and disposal.

Wastes will be accumulated in an area identified and approved by the Navy. If an accumulation area is not designated, CCI will accumulate hazardous wastes in an area that is not accessible to the general public, and that can be secured.

Waste accumulation areas will contain appropriate emergency response equipment. The Health and Safety Plan (Appendix C) identifies the specific emergency response procedures and equipment. Hazardous waste accumulation areas will include fire extinguishers (in areas where wastes are known or suspected to be flammable or ignitable), decontamination equipment, and an alarm system (if radio equipment is not available to all staff working in accumulation area). Spill control equipment (e.g., sorbent pads) will be available in the waste accumulation areas, and where liquids are transferred from one vessel to another.

All containers, drums, and tanks will be inspected upon arrival at the site for disrepair and any residual contamination or contents. If container contains waste upon arrival or is in disrepair, it will be immediately rejected and documented.



All wastes will be contained in a manner that prevents the spread of contamination. Unless the Navy has designated a specific waste storage area, wastes will be accumulated (and stored) near the project site. These waste storage areas are under CCI control.

### **Security/Contingency Planning**

A barrier, such as barricade tape or temporary fencing, will be provided for hazardous waste accumulation areas, and for other waste storage areas that are accessible to the general public. All hazardous waste storage areas will also have signs to identify the areas and provide 24-hour emergency contacts and telephone numbers.

Hazardous waste management areas will contain emergency equipment, including fire extinguishers, decontamination equipment, and an alarm system (if radio equipment is not available to all staff working in storage area). Spill control equipment (e.g., sorbent pads) will be available in all waste storage areas, and where liquids are transferred from one vessel to another.

### **Drums (or other small containers)**

The following procedures will be followed when using drums:

- All drums will be inspected and inventoried upon arrival onsite for signs of contamination and/or deterioration.
- Adequate aisle space (e.g., 30 inches) between drums will be provided to allow the unobstructed movement of personnel and equipment. A row of drums should be no more than two drums wide.
- Each drum will be provided with its own label, with labels visible.
- Drums will remain covered except when removing or adding waste to the drum. Covers will be properly secured at the end of each workday.
- Drums will be disposed of with the contents. If the contents are removed from the drums for offsite transportation and treatment or disposal, the drums will be decontaminated prior to re-use or before leaving the site or crushed and disposed appropriately.
- During onsite transport, drums of hazardous waste will be transported on wood pallets and secured together with non-metallic bonding.
- Drums containing liquid hazardous waste will be provided with secondary containment.

### **Portable Tanks**

The following procedures will be followed when using portable tanks:

- Tanks will be inspected upon arrival onsite for signs of deterioration and contamination. Any tank arriving onsite with contents will be rejected.
- Tanks will be provided with covers.
- Each tank will be labeled, with labels visible.



- All tanks will be provided with secondary containment.

### **Roll-off Boxes**

The following procedures will be followed when using roll-off boxes:

- Roll-off boxes will be inspected upon arrival onsite. Any roll-off box arriving onsite with contents will be rejected.
- Roll-off boxes for hazardous or excessively contaminated soils will be provided with disposable liners that will be disposed of as contaminated debris.
- When not in use, securely fastened covers will be installed on all roll-off boxes.
- Old labels will be removed, and new labels will be attached.
- Roll-off containers will be inspected by the transporter after removal of the liner and decontaminated in the event of evidence of liner failure.

### **Soil Stockpiles**

The following procedures will be followed when using soil stockpiles:

- Stockpiled soil will be provided with secondary containment (i.e., a liner, and perimeter berm to prevent rupture and release or infiltration of liquids), and a cover, as appropriate.
- Minimum 6-mil polyethylene sheeting will be used for liners and covers.
- The perimeter berm, typically hay bales placed beneath the liner, will be constructed to allow for collection of any liquids draining from the stockpile.
- Contaminated liquids that accumulate in the secondary containment will be pumped (or otherwise removed) to a container or tank.
- Covers and perimeter berms will be secured in-place when not in use and at the end of each workday, or as necessary to prevent wind dispersion or run-off from major precipitation events.
- Construction materials for the stockpiles that contact waste will be disposed of as contaminated debris.
- Accumulation start dates will be recorded on a log or a sign located at the stockpile.

### **Storage Piles**

Where appropriate, construction debris and waste, or intact equipment may be accumulated in storage piles. All storage piles will be managed in such a manner as to maintain good housekeeping, and to prevent the spread of contamination.

- Contaminated materials, the storage piles will be provided with secondary containment as indicated for soil stockpiles. Damaged or leaking electrical or hydraulic equipment may not be stored in storage piles.



- Uncontaminated or decontaminated debris and waste, or intact equipment, the storage piles should be placed on a liner. These piles will be covered as necessary to prevent stormwater run-on and run-off.

### **Inspection of Waste Storage Areas**

Waste accumulation areas will be inspected for malfunctions, deterioration, discharges, and leaks that could result in a release. The following inspection schedule will be followed:

- At least weekly inspection of containers, tanks and roll-off containers (for leaks, signs of corrosion, or signs of general deterioration).
- At least weekly inspection of stockpiles (for liner and berm integrity).

Any deficiencies observed or noted during inspection will be rectified immediately. Appropriate measures may include transfer of waste from leaking container to new container, replacement of liner or cover, or repair of containment berm.

If operations will be suspended for more than 7 days, contact the regulatory compliance manager and alternate inspection arrangements will be made. Prior to demobilization, all hazardous wastes will be removed from the site.

Inspections will be recorded in the daily Quality Control Report (QCR) and include any deficiencies and how the issue was rectified. Copies of the report will be maintained onsite, and available for review.

## **4.4 Shipping Documentation**

Prior to offsite disposal of any waste, CCI will provide the Navy with a waste approval package for each waste stream. This package shall include a waste profile naming the U.S. Navy as the generator of the waste, analytical summary table(s) applicable to the waste, letter of approval from the proposed waste disposal facility to accept the waste, land disposal restriction (LDR) notification for any hazardous wastes, a completed example waste manifest, and any other applicable information necessary for the Navy to complete its review of the disposal package and signature as the generator. This package will be reviewed by the CCI Waste Coordinator prior to submission to the Navy.

The signed profile will then be submitted to the disposal facility for acceptance approval. Once the approval letter is received from the disposal facility, transportation will be scheduled.

Each load of waste will be manifested prior to leaving the site. At a minimum, the manifest form will include the following information:

- Generator information including name, address, contact, and phone number, EPA ID number
- Transporter information including name, address, contact and phone number, EPA ID number
- Facility information including name, address, phone number, EPA ID number



- Site name including street/ mailing address
- U.S. DOT Proper Shipping Name (e.g., Hazardous Waste Solid, n.o.s., 9, UN 3077, PG III [D008])
- Type and number of container
- Quantity of waste (volumetric estimate)
- CTO or job number
- Profile number
- 24-hour Emergency phone number

Additionally, each shipment of waste will also have a haul/weight ticket. An LDR Notification/Certification is also required for hazardous wastes. This form also requires the generator signature and submission to the disposal facility with the profile.

The generator (Navy) and the transporter must sign the manifest prior to the load of waste leaving the site. A copy of the manifest will be retained on site and included with the daily QCR. The original signed manifest will be returned to the address of the generator. The facility will provide a copy of this signed manifest, weight tickets, and certificates of disposal to CCI for the final report. The final report will include copies of the facility signed manifest, weight ticket, LDR (if applicable), and the Certificate of Disposal/Destruction/Recycle.

If the signed hazardous waste manifest from the designated offsite facility is not received within 35 days, CCI will contact the transporter or the designated facility to determine the status of the waste. If the signed hazardous waste manifest has not been received within 45 days, CCI, in coordination with the Navy, will issue an "Exception Report" to the state of Florida, as required under 40 CFR 262.42.

## 4.5 Transportation

Trucks and containers used to transport contaminated waste offsite will be inspected *prior* to loading for signs of deterioration and contamination. Any truck or container with contents/residues or in poor condition will be rejected.

Each transportation vehicle and load of waste will be inspected before leaving the site and documented. The quantities of waste leaving the site will be documented, at a minimum on the T&D Log. A contractor licensed for commercial transportation will transport non-hazardous wastes. In the event that wastes are hazardous, the transporter will have a EPA Identification number, and will comply with transportation requirements outlined in 49 CFR 171-179 (Department of Transportation) and 40 CFR 263.11 and 263.31 (Hazardous Waste Transportation). A copy of the documentation indicating that the selected transporter has appropriate licenses will be received and approved by CCI prior to transport of any waste.



#### **4.5.1 Transporter Responsibilities**

The transporter will be responsible for weighing loads at a certified scale. For each load of material, weight measurements will be obtained for each full and empty container, dump truck, or tanker truck. Disposal quantities will be based on the difference of weight measurements between the full and empty container, dump truck, or tanker truck. Weights will be recorded on the waste manifest. The transporter will provide copies of weight tickets to CCI.

The transporter will observe the following practices when hauling and transporting wastes offsite:

- Minimize impacts to general public traffic.
- Repair road damage caused by construction and/or hauling traffic.
- Cleanup waste spilled in transit.
- Line and cover trucks/trailers used for hauling contaminated waste to prevent releases and contamination.
- Decontaminate vehicles prior to re-use, other than hauling contaminated waste.
- Seal trucks transporting liquids.
- All personnel involved in offsite disposal activities will follow safety and spill response procedures outlined in the Health and Safety Plan.
- No materials from other projects will be combined with materials from NS Mayport.

#### **4.5.2 Transportation and Disposal Log**

The T&D Log is used to track waste from generation to final disposition. Wastes will be logged into the T&D Log the day waste is generated and placed into containers.

Transportation of wastes will be inventoried the day of transportation from the site using the T&D Log. Final disposal will be documented on the T&D Log using the Certificate of Disposal. The blank T&D Log is attached in Appendix B.

### **4.6 Waste Disposal**

Offsite treatment or disposal facilities will use the waste profile and supporting documentation (e.g., analytical results and flow-rate data) to determine if they will accept a waste. The treatment or disposal facility will be responsible for providing a copy of the final waste manifest and for a certificate of treatment or disposal for each load of waste received. Wastes will be disposed as follows:

- Hazardous wastes (including environmental media) will be sent to a permitted, RCRA Subtitle C treatment, storage, or disposal (TSD) facility.
- Non-hazardous wastes will be disposed in a facility permitted to accept the types and quantities of contamination (e.g., Subtitle D landfills).



The spoils from the MIP/DPT activities will be placed into roll-offs, transported and disposed of offsite at an appropriate disposal facility based on generator knowledge and analytical results.

Uncontaminated, or decontaminated, construction and demolition debris may be sent to municipal landfills, or landfills designated for construction/demolition debris.

## **4.7 Security and Contingency Planning**

Emergency response equipment including fire extinguishers, decontamination equipment and an alarm system (if radio equipment is not available to CCI) will be available at all waste and fuel storage areas. This equipment will either be provided at the waste storage area, or in personnel vehicles. Spill control equipment/material (e.g., sorbent pads) will be available in all waste and fuel storage areas and where liquids are transferred from one vessel to another.

Security will be provided in waste storage areas. Because the waste contents are unknown, a barrier, such as barricade tape or temporary fencing, should be provided. Additionally, signs will be posted at storage areas that are unmanned for more than 24 hours, identifying appropriate CCI personnel and phone numbers to contact in an emergency.

## **4.8 Records/Reporting**

The following records and documents will be maintained:

- Transportation and offsite disposal records, including:
  - Profiles and associated characterization data
  - Manifests, LDR notifications/certifications, weight tickets, and other shipping records
  - Offsite facility waste receipts, certificates of disposal/destruction
- Inspection records



## **5.0 Environmental Protection Plan**

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The Environmental Protection Plan provided in the Basewide Work Plan provides general information on the appropriate requirements to be adhered to during the performance of the work at NS Mayport. The following information is supplemental and specific to site activities.

### **5.1 Regulatory Drivers**

- Remedial activities at Site 1330 are regulated under the Resource Conservation and Recovery Act (RCRA)
- FDEP
- EPA 40 CFR 61

### **5.2 Spill Prevention and Control**

The provisions for spill prevention and control establishes minimum site requirements. All spills will be reported to the CCI site supervisor and/or project manager. Refer to the Health and Safety Plan for emergency response procedures and further reporting requirements.

### **5.3 Spill Prevention**

All fuel, chemical, and waste storage areas will be properly protected from on- and offsite vehicle traffic. All tanks (including fuel storage and waste storage) must be equipped with secondary containment. These tanks must be inspected daily for signs of leaks.

Accumulated water must be inspected for signs of contamination (e.g., product sheen, discoloration, and odor) before being discarded. Fire protection provisions outlined in the health and safety plan and in subcontractor plans must be adhered to.

Chemical products must be properly stored, transferred, and used. Should chemical product use occur outside areas equipped with spill control materials, adequate spill control materials must be maintained at the local work area.

### **5.4 Spill Containment and Control**

Spill control materials will be maintained in the support zone, at fuel storage and dispensing locations, and at waste storage areas. Incidental spills will be contained with sorbent and disposed of properly. Spilled materials must be immediately contained and controlled. Spill response procedures include:



- Immediately warn any nearby workers and notify supervisor;
- Assess the spill area to ensure that it is safe to respond;
- Evacuate area if spill presents an emergency;
- Ensure any nearby ignition sources are immediately eliminated;
- Stop source of spill;
- Establish site control for spill area;
- Contain and control spilled material through use of sorbent booms, pads, or other material; and
- Use proper PPE in responding to spills.

## **5.5 Spill Cleanup and Removal**

All spilled material, contaminated sorbent, and contaminated media will be cleaned up and removed as soon as possible. Contaminated spill material will be drummed, labeled, and properly stored until material is disposed of. Contaminated spill material will be managed as waste (see Waste Management Plan) and disposed of according to applicable, federal, state, and local requirements.

## **5.6 Endangered Species Protection**

An endangered species survey was conducted by Jeffery Marks on January 20, 2004, by contacting the NS Mayport Natural Resource Biologist, Mr. Forrest Penny and no endangered species are present at or around Site 1330.

## **5.7 Erosion Control**

During site activities that have the potential to disturb the land, the CCI will adhere to the following practices:

- The smallest practical area will be disturbed.
- Trees outside the area will be protected from any construction activity. No ropes, cables, or guy lines will be fastened or attached to any existing trees.
- Temporary erosion and sediment controls will be used to prevent sediment from discharging to any ponds or wetland areas. Structural controls may include the use of straw bales, silt fences, earth dikes, drainage swales, sediment traps, and sediment basins.

Material staging areas will be properly barricaded for containment and to control run-off as needed.



## **6.0 Quality Control Plan**

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This QC Plan identifies the quality administrators, the project organization, and the definable features of work.

The Submittal Register, included in Appendix B of this Work Plan Addendum, documents submittals. CCI, the Navy, or others will approve submittals as identified in the Submittal Register. All approved submittals will be distributed by CCI to the appropriate Navy personnel (CO, ROICC (in duplicate), etc.), the project site, and to the project file.

The Program-specific project organization chart (Figure 6-1) depicts the chain of command for this CTO and the individuals responsible for executing the work as indicated. Individual roles and responsibilities of CTO personnel are summarized in Table 6-1.

### **6.1 Appointing Letter of Project QC Manager**

The Project QC Manager for this CTO will be Mr. Dave Keul. The appointing letter for Mr. Keul is included in Appendix B. The Alternate Project QC Manager for this CTO will be Mr. Bruce Johnson. The appointing letter for Mr. Johnson is included in Appendix B.

### **6.2 Testing Requirements**

This section describes construction testing and environmental analysis laboratories and their certifications; environmental sampling and analysis, and test control. The Testing Plan and Log is provided in Appendix B.

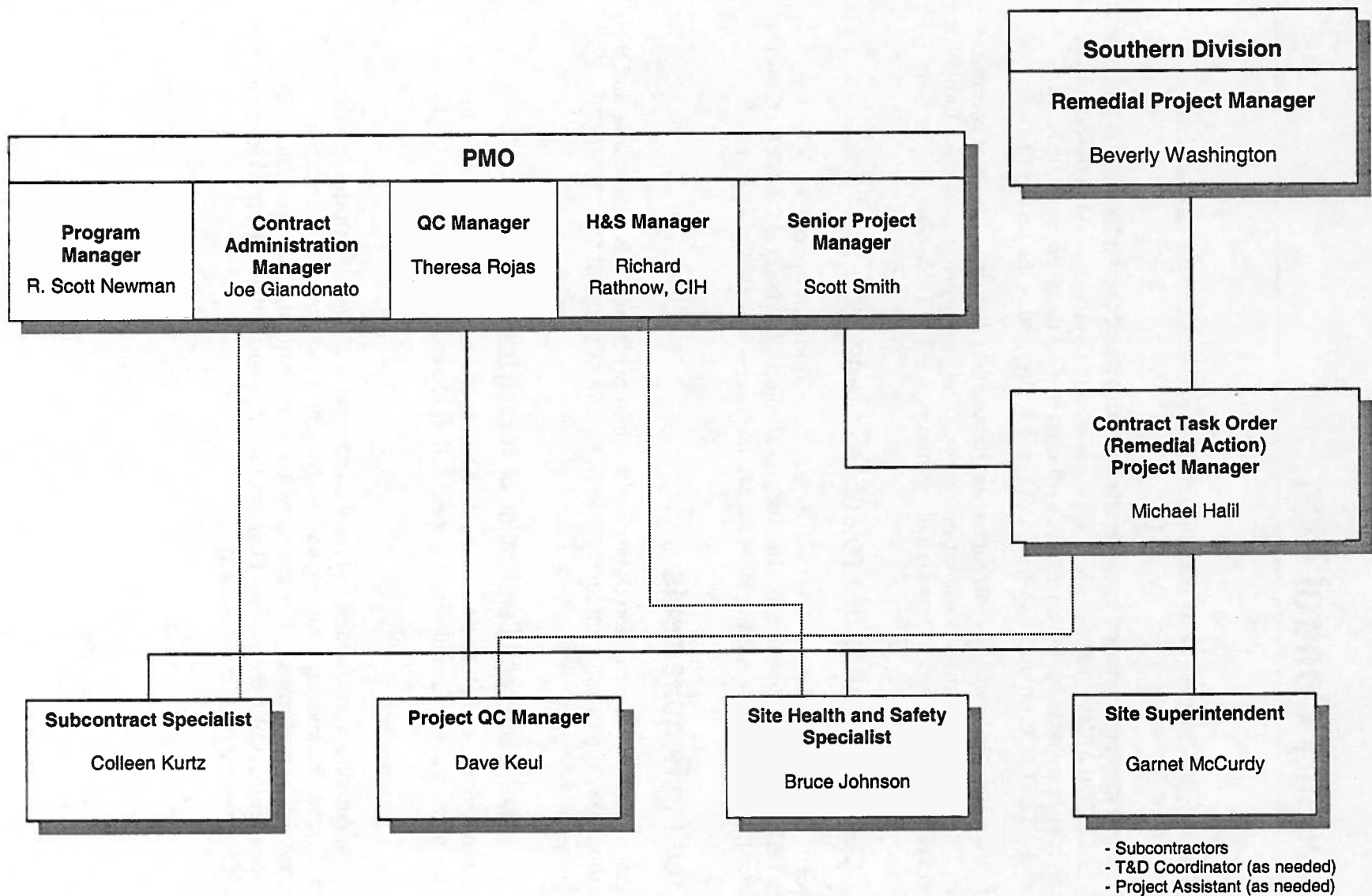
#### **6.2.1 Identification and Certification of Testing Laboratories**

The environmental testing laboratories that will be utilized for this CTO will function as a subcontractor or a lower tier subcontractor to CCI, and have not yet been identified.

#### **6.2.2 Construction**

This section describes construction testing and chemical analysis laboratories and their certifications; environmental sampling and analysis, and test control. Construction inspections will be performed while executing the work. Although construction testing is not planned for this CTO, the Testing Plan and Log (Appendix B) will be used to record the results of any testing performed in the field.







**TABLE 6-1**

Roles, Responsibilities, and Authorities of Key Project Personnel

Role	Responsibility	Authority
Project Manager	Management and Technical Direction of work Communicate with Southern Division RPM and NTR Overview subcontractor performance Select CTO staff Develop CTO Work Plan and supporting plans Meet CTO Performance Objectives Prepare status reports Prepare Field Change Requests	Approve subcontractor selection Approve invoices to Southern Division Approve CTO baseline schedule Stop work at the site for any reason Approve payment to vendors and suppliers Approve payment to subcontractors Review technical qualifications of subcontractors Respond to Design Change Notices
Site Superintendent	Responsible for all site activities Provide direction to subcontractors Act for Project Manager Provide daily status reports Prepare CTO Work Plan Conduct daily safety meetings Review subcontractor qualifications Stop work for unsafe conditions or practices	Stop work for subcontractors Approve corrective action for site work-arounds Approve materials and labor costs for site operations Resolve subcontractor interface issues Approve daily and weekly status reports
Project QC Manager	Monitor and oversee subcontractor compliance with scope of work Review requests for changes in scope of work Recommend improvements in work techniques or metrics Recommend work-around to Site Superintendent Monitor and report on subcontractor quality and quantities Audit subcontractors offsite fabrication Maintain Submittal Register Participate in Incident-Free Operations conference call	Complete daily compliance report Monitor and report on subcontractor quality and quantities Audit subcontractors offsite fabrication Maintain Submittal Register Stop work for non-compliant operations Maintain Rework Items list Stop work for non-compliant operations
Site Health and Safety Specialist	Monitor and report on subcontractor safety and health performance Record and report safety statistics Conduct needed site safety and health orientation Maintain Environmental Log Stop work for unsafe practices or conditions	Stop work for unsafe practices or conditions Approve subcontractor site-specific health and safety plan Set weekly safety objectives Approve resumption of work for resolved safety issues
Subcontract Specialist	Prepare bid packages Purchase disposable materials Maintain subcontract log Approve payables for disposable items Maintain government property records	Provide project scheduling coordination Responsible for site cost tracking and reporting Maintain record of site purchases

### 6.2.3 Environmental

Samples of soil and groundwater will be collected during the source area investigation. The samples will be tested using an onsite and an offsite laboratory. The onsite and offsite laboratories will provide definitive analysis of soil and groundwater samples. The samples collected via DPT will be sent to the onsite and offsite laboratories for definitive analysis and the results compared with the instrument response obtained from the MIP. (The MIP



will measure and record additional parameters for interpreting the soil and groundwater concentration, including conductivity, probe advance rate, and temperature.)

Laboratories performing testing of environmental samples requiring definitive analysis will be approved by National Voluntary Laboratory Accreditation Program (NVLAP), USACE, or AFCEE, and certified by the State of Florida.

## **6.3 Testing and Sampling**

Soil and water will be sampled under the direction of CCI or its subcontractors. No geophysical or geotechnical soil testing (grain size, standard proctor and compaction) is required and will not be performed. The laboratory analytical testing will comply with the quality requirements established in FDEP Standard Operating Procedures, Department of Environmental Regulation DEP-SOOP-001/01 and EPA Region IV Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (SOPQAM, November 2001).

## **6.4 Construction Inspections**

Inspections of the soil and groundwater investigation activities at NS Mayport will be performed in accordance with the three phases of control, as described in the NS Mayport Basewide Work Plan (CCI, 1999). The definable features of work for activities included in this Work Plan Addendum are: mobilization and site preparation, soil and groundwater sampling via MIP and DPT, surveying, and site restoration and demobilization. The construction inspections associated with the definable features of work items are described below.

### **6.4.1 Mobilization and Site Preparation**

As part of the mobilization activity, a pre-construction meeting will be held to review the preparedness to begin the project and the procedures and schedule to complete the project. The preparedness check will verify that the permitting/approvals are in place for the investigation activities, and that the resources mobilized to the field have been inspected and are in conformance with the project specifications and are in good working condition. The site preparation task will include obtaining utility clearances, demarcating the work area boundaries, and setting up equipment laydown and storage areas. The following quality controls will be implemented during the mobilization and site preparation activities.

#### **Preparatory Phase**

The preparatory phase will include a review of the relevant activity hazard analyses (AHAs), the Work Plan Addendum, communications matrix, project schedule, submittal status, and confirming that appropriate materials and equipment are available to commence the work activities.

#### **Initial Phase**

Inspections will be made as necessary to ensure construction limits are defined, utilities marked, and material staged in the designated areas.



### Follow-up Phase

The Project QC Manager will provide continuous oversight of the site preparation activities to verify that the work is completed in accordance with the requirements provided in this Work Plan Addendum. Deficiencies will be noted and corrected.

Mobilization and site preparation inspections include:

Task	Procedures/Construction Details
Pre-construction Meeting	-Verification of excavation permit and utility clearance from NS Mayport -Verification of designated locations of equipment layout, material and waste staging, and decontamination
Site walk	-Verification of site layout plan -Verification of Environmental Conditions Report
Pre-construction Submittals	-Subcontractor plans and specifications -Subcontractor personnel qualification and certifications
Temporary Facilities	-Verification of temporary facilities for conformance with NS -Mayport requirements

### 6.4.2 Soil and Groundwater Sampling via MIP and DPT

CCI will sample soil and groundwater samples collected via DPT and ship to the onsite and offsite laboratories for analyses. Environmental samples will be collected in accordance with EPA methods and procedures. Other controls will include, but are not limited to, maintaining a chain-of-custody; proper handling, packing, and shipping; and the use of a certified offsite laboratory.

#### Preparatory Phase

The preparatory phase for sample collection activities includes a review of the sampling procedures provided in the SAP, verifying acceptance of the selected laboratory for sample testing, and confirming that the appropriate equipment and materials are available to complete the sampling activities. During the preparatory phase, the onsite/offsite laboratory will demonstrate instrument calibration and accuracy.

#### Initial Phase

Investigation samples will be collected and subsequently analyzed at an approved laboratory in accordance with methods outlined in the project specific sampling and analysis plan. Sample collection activities including proper chain-of-custody documentation will follow the protocols outlined in the project specific sampling and analysis plan.

#### Follow-up Phase

Sample collection locations and activities will be properly documented throughout each sampling event. Analytical reports from the approved laboratory will be reviewed for accuracy and completeness. If required, data quality and quality assurance information from the laboratory will be reviewed to verify discrepancies in the analytical data. CCI quality assurance personnel will review and tabulate laboratory confirmation data and field sampling results. Environmental samples will be collected in accordance with EPA methods and procedures.



Sampling inspections include:

Task	Procedures/Construction Details
Soil and Groundwater Sampling	<ul style="list-style-type: none"> <li>-Boring equipment decontamination</li> <li>-Document existing monuments and structures</li> <li>-Acquire copy of laboratory certification</li> <li>-Verify appropriate facilities and testing equipment are available and comply with testing standards</li> <li>-Verify the field instruments are calibrated in accordance with manufacturers' recommendations</li> <li>-Verify recording forms, including all of the test documentation requirements, have been prepared and are accurate and complete</li> </ul>

### 6.4.3 Surveying

The final survey map will be completed with 1-meter contours and spot elevations surveyed every 30 meters. All spot elevations will have a horizontal accuracy of 0.25 meters and a vertical accuracy of 0.1 meter.

The surveyed horizontal geographic position and state plane coordinates will be referenced to permanent or semi-permanent control points existing on the project site and will be accurate 0.25 meter, plus or minus. Horizontal control will be referenced to the North American Datum of 1983 [NAD83]. Data conversions from the metric system to the English system shall use the U.S. Survey Foot definition (1 meter = 39.37 inches). All drawings and calculations will contain a prominent note stating same.

Surveying inspections include:

Task	Procedures/Construction Details
Site Surveying	<ul style="list-style-type: none"> <li>-Surveyor Qualifications / License</li> <li>-Establishment of Temporary Control Points</li> <li>-Verification of Existing Monuments</li> <li>-Protection: Monuments and Control Points</li> <li>-Instrument Calibration and Accuracy</li> <li>-Horizontal and Vertical Control</li> <li>-Surveying Tolerances (horiz, vert, angles)</li> <li>-Reference to Applicable Plane Coordinates and Vertical Datum</li> <li>-Surveyor notes legibility, accuracy &amp; completeness</li> <li>-Electronic and Hard Copy Data Deliverables</li> </ul>

### 6.4.4 Site Restoration and Demobilization

Demobilize equipment and personnel from the site following the completion of the work activities identified in this Work Plan Addendum. The Project QC Manager will verify that the objectives of associated remedial activities have been met.

#### Preparatory Phase

The preparatory phase will include a review of decontamination procedures, the site-specific health and safety plan, the waste management plan, and relevant AHA forms.



### 6.4.5 Initial Phase

The site superintendent will perform inspections to confirm that the objectives of the decontamination and site restoration activities have been met and that the rework items, if any, have been completed to the satisfaction of CCI and the Navy ROICC.

#### Follow-up Phase

The project QC manager will provide continuous oversight of the demobilization to verify that the work is completed in accordance with the requirements provided in the Work Plan Addendum. Daily observation will verify compliance with the objectives of the Work Plan Addendum. Deficiencies will be noted and corrected.

Site restoration and demobilization inspections include:

Task	Procedures/Construction Details
Site Restoration and Demobilization	<ul style="list-style-type: none"><li>-Abandon all borings using bentonite grout slurry</li><li>-Pre-final site inspection and develop punch-list items</li><li>-Work areas to ensure all temporary facilities, equipment and materials are safely removed from the site</li><li>-Work areas to ensure project housekeeping and cleaning</li><li>-Complete site survey</li><li>-Decontamination of equipment</li><li>-Completion inspection when work is substantially complete</li><li>-Punch lists on outstanding items</li><li>-Project housekeeping and final project cleaning</li><li>-Final Inspections</li><li>-Orderly Site Demobilization</li><li>-Collation of Site Records and Documents</li><li>-Final Reports &amp; Deliverables</li><li>-Complete Resolution of Punch-list items</li><li>-Final Site Inspection</li><li>-Orderly Site Demobilization</li></ul>

## 6.5 Test Control

Environmental samples will be collected in accordance with EPA methods and procedures. Other controls will include, but are not limited to, maintaining a chain of custody; proper handling, packing, and shipping; and the use of qualified laboratories. The Project QC Manager will verify the following:

- Facilities and testing equipment are available and comply with testing standards.
- The field instruments are calibrated in accordance with manufacturers' recommendations.
- Recording forms, including all of the test documentation requirements, have been prepared and are accurate and complete.

## 6.6 CTO Support Organizations

The supporting organizations are yet to be determined.



## 7.0 References

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CH2M HILL Constructors, Inc. 1999. Basewide Work Plan, Naval Station Mayport, Mayport, Florida, Contract No. N62467-98-D-0995. May.

Tetra Tech, NUS. 1999. Site Assessment Report Addendum at Site 1330, Naval Station Mayport.




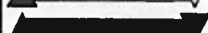

## **Appendix A**

### **Critical Path Method Project Schedule**



Activity ID	WBS	% Comp	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	<div> <div>2004</div> <div>2005</div> <div>2006</div> </div>											
<b>CTO #0012 - NAVSTA - Mayport, FL</b>																			
Subtotal		13		733	585	28MAY03A	24MAR06												
<b>+ PHASE 1</b>																			
		100		31	0	28MAY03A	10JUL03A												
<b>+ PHASE 2</b>																			
		29		232	84	28MAY03A	22APR04												
<b>PHASE 3</b>																			
Subtotal		8		733	585	28MAY03A	24MAR06												
<b>SOURCE AREA INVESTIGATION at SITE 1330</b>																			
Subtotal		29		232	84	28MAY03A	22APR04												
<b>PROJECT MANAGEMENT</b>																			
ALPA010101	PA.01.01.01	20	PMO	733	585	28MAY03A	24MAR06												
AL99220101	99.22.01.01	0	PROJECT MANAGEMENT	565	565	26JAN04*	24MAR06												
AL99220426	99.22.04.26	0	Project QA/QC Audit	40	40	19APR04	11JUN04												
<b>MOBILIZATION &amp; PREPARATORY WORK</b>																			
AL31010394	31.01.03.94	0	DPT/MIP Subcontractor Pre-Con Submittals	10	10	26JAN04	06FEB04												
AL31221209	31.22.12.09	0	DPT/MIP Subcontractor Bond	5	5	02FEB04	06FEB04												
AL31010292	31.01.02.92	0	DPT/MIP Subcontractor Mobilization	5	5	09FEB04	13FEB04												
<b>MONITORING, SAMPLING, TEST &amp; ANALYSIS</b>																			
AL31020590	31.02.05.90	0	DPT Services - MIP	10	10	09FEB04	20FEB04												
AL31020591	31.02.05.91	0	DPT Services - Soil/GW Sampling	5	5	23FEB04	27FEB04												
AL31020990	31.02.09.90	0	Off-Site Lab - QC Analysis	5	5	23FEB04	27FEB04												
AL31020991	31.02.09.91	0	Disposal Characterization Analysis	5	5	23FEB04	27FEB04												
AL31021302	31.02.13.02	0	Mobile Lab Services	5	5	23FEB04	27FEB04												
AL31021490	31.02.14.90	0	Independent Data Validation	5	5	23FEB04	27FEB04												
AL31021491	31.02.14.91	0	Data Evaluation & Management	5	5	23FEB04	27FEB04												
<b>ENGINEERING, SURVEY &amp; QC</b>																			
AL31220410	31.22.04.10	0	Post-Con Survey	5	5	01MAR04	05MAR04												
<b>TRANSPORTATION AND DISPOSAL</b>																			
AL31192190	31.19.21.90	0	Drum T&D	5	5	15MAR04	19MAR04												
<b>DEMOBILIZATION</b>																			
AL31210591	31.21.05.91	0	Subcontractor Demobilization	5	5	23FEB04	27FEB04												

Start Date 28MAY03  
 Finish Date 24MAR06  
 Data Date 26DEC03  
 Run Date 06FEB04 14:25

 Early Bar  
 Progress Bar  
 Critical Activity

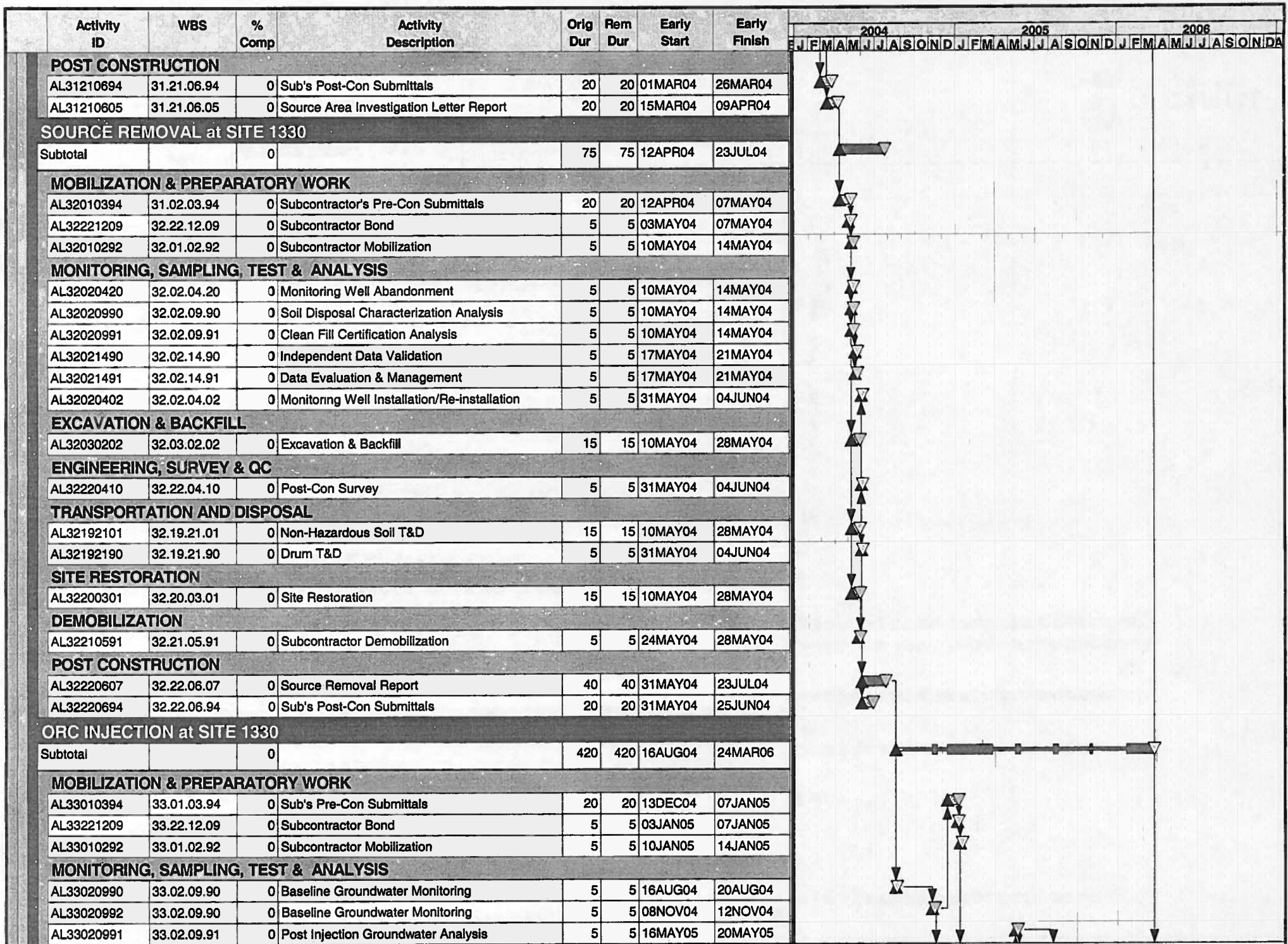
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Sheet 1 of 3

CTO #0012 - NAVSTA - Mayport, FL  
 CTO COMPLETION SCHEDULE  
 NAVY RAC SOUTHERN DIVISION









Activity ID	WBS	% Comp	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	2004												2005												2006																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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## **Appendix B**

### **Transportation and Disposal/Quality Control Attachments**

- *Transportation and Disposal Log*
- *Summary of Field Tests Log*
- *Quality Control Manager Appointing Letter*
- *Alternate Quality Control Manager Appointing Letter*
- *Contractor Daily Production Report*
- *Contractor Daily Quality Control Report*
- *Preparatory Phase Report*
- *Submittal Register*
- *Testing Plan Log*



### Transportation and Disposal Log

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[illegible]



**CH2M HILL**

115 Perimeter Center Place, N.E.

Suite 700

Atlanta, GA

30346-1278

Tel 770.604.9095

Fax 770.604.9282

February 17, 2004

Mr. Dave Keul  
J.A. Jones Environmental Services Company  
6219 Authority Avenue  
Jacksonville, Florida 32221

RE: Contract No. N62467-01-D-0331  
Contract Task Order No. 0012  
Naval Station (NS) Mayport - Mayport, Florida  
Project Quality Control Manager Letter of Appointment

Dear Mr. Keul:

Herein describes the responsibilities and authority delegated to you in your capacity as the Project QC Manager at the NS Mayport site, Contract Task Order (CTO) 0012 under RAC Contract No. N62467-01-D-0331.

In this position, you assist and represent the Program QC Manager in continued implementation and enforcement of the Project QC Plans. Your primary role is to ensure all requirements of the contract are met. Consistent with this responsibility, you will: (i) implement the QC program as described in the Navy RAC contract; (ii) manage the site-specific QC requirements in accordance with the Project QC Plans; (iii) attend the coordination and mutual understanding meeting; (iv) conduct QC meetings; (v) oversee implementation of the three phases of control; (vi) perform submittal review and approval; (vii) ensure testing is performed; (viii) prepare QC certifications and documentation required in the Navy RAC Contract; and, (ix) furnish a Completion Certificate to the Contracting Officer or designated representative, upon completion of work under a contract task order, attesting that "the work has been completed, inspected, and tested, and is in compliance with the contract."

Your responsibilities further include identifying and reporting quality problems, rejecting nonconforming materials, initiating corrective actions, and recommending solutions for nonconforming activities.

You have the authority to control or stop further processing, delivery, or installation activities until satisfactory disposition and implementation of corrective actions are achieved. You have the authority to direct the correction of non-conforming work. All work requiring corrective action will be documented on daily reports, and, in the event non-conforming work is not immediately corrected you are required to submit a non-conformance report to the PM and copy the Program QC Manager. A status log will be kept of all non-conforming work. You shall immediately notify the Program QC Manager in the event of any stop work order.



It is imperative that you comply with all terms of the basic contract. In particular, Section C, Paragraph 6.5.2, which states:

*"No work or testing may be performed unless the QC Program Manager or Project QC Manager is on the work site."*

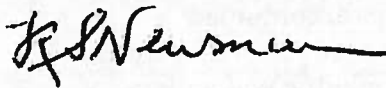
In the event that you are not able to be at the work site when work or testing is to be performed, it is your responsibility to inform the Program QC Manager and Project Manager, in advance, so that other arrangements can be made.

Further, if you are requested to perform the duties of the Site Supervisor, it is your responsibility to inform the Program QC Manager so that approval can be obtained in advance from the Contracting Officer or designated representative, in accordance with Section C Paragraph 6.2.1 of the contract.

You are a key member of the Project Manager's team. You ensure that work meets the specific requirements and intent of the work plan, the Navy's scope of work and the basic contract. Should you have any questions regarding this role, you should immediately contact the Program QC Manager, Theresa Rojas. Your day-to-day activities on the site should be coordinated with all site personnel and the Project Manager. In event of any deficient items, the Superintendent and Project Manager should be advised immediately so they have opportunity to remedy the situation.

Sincerely,

CH2M HILL Constructors, Inc.



R. Scott Newman  
Program Manager

cc: Mike Halil/J.A. Jones  
Theresa Rojas/ATL  
CCI Project File No. 281913





**CH2M HILL**

115 Perimeter Center Place, N.E.

Suite 700

Atlanta, GA

30346-1278

Tel 770.604.9095

Fax 770.604.9282

February 17, 2004

Mr. Bruce Johnson  
J.A. Jones Environmental Services Company  
6219 Authority Avenue  
Jacksonville, Florida 32221

RE: Contract No. N62467-01-D-0331  
Contract Task Order No. 0012  
Naval Station (NS) Mayport - Mayport, Florida  
Alternate Project Quality Control Manager Letter of Appointment

Dear Mr. Johnson:

Herein describes the responsibilities and authority delegated to you in your capacity as the alternate Project QC Manager on the NS Mayport, Contract Task Order (CTO) 0012 under the Navy RAC Contract # N62467-01-D-0331.

In this position, you assist and represent the Project QC Manager in the event that he is not on the project site and the Program QC Manager in continued implementation and enforcement of the Project QC Plans. Your primary role is to ensure all requirements of the contract are met. Consistent with this responsibility, you will: (i) implement the QC program as described in the Navy RAC contract; (ii) manage the site-specific QC requirements in accordance with the Project QC Plans; (iii) attend the coordination and mutual understanding meeting; (iv) conduct QC meetings; (v) oversee implementation of the three phases of control; (vi) perform submittal review and approval; (vii) ensure testing is performed; (viii) prepare QC certifications and documentation required in the Navy RAC Contract; and, (ix) furnish a Completion Certificate to the Contracting Officer or designated representative, upon completion of work under a contract task order, attesting that "the work has been completed, inspected, and tested, and is in compliance with the contract."

Your responsibilities further include identifying and reporting quality problems, rejecting nonconforming materials, initiating corrective actions, and recommending solutions for nonconforming activities.

You have the authority to control or stop further processing, delivery, or installation activities until satisfactory disposition and implementation of corrective actions are achieved. You have the authority to direct the correction of non-conforming work. All work requiring corrective action will be documented on daily reports, and, in the event non-conforming work is not immediately corrected you are required to submit a non-conformance report to the PM and



copy the Program QC Manager. A status log will be kept of all non-conforming work. You shall immediately notify the Program QC Manager in the event of any stop work order.

It is imperative that you comply with all terms of the basic contract. In particular, Section C, Paragraph 6.5.2, which states:

*"No work or testing may be performed unless the QC Program Manager or Project QC Manager is on the work site."*

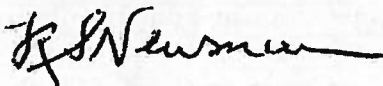
In the event that you are not able to be at the work site when work or testing is to be performed, it is your responsibility to inform the Program QC Manager and Project Manager, in advance, so that other arrangements can be made.

Further, if you are requested to perform the duties of the Site Supervisor, it is your responsibility to inform the Program QC Manager so that approval can be obtained in advance from the Contracting Officer or designated representative, in accordance with Section C Paragraph 6.2.1 of the contract.

You are a key member of the Project Manager's team and ensure that work meets the specific requirements and intent of the work plan, the Navy's scope of work and the basic contract. Should you have any questions regarding this role, you should immediately contact the Program QC Manager, Theresa Rojas. Your day-to-day activities on the site should be coordinated with all site personnel and the Project Manager. In event of any deficient items, the Superintendent and Project Manager should be advised immediately so they have opportunity to remedy the situation.

Sincerely,

CH2M HILL Constructors, Inc.



R. Scott Newman  
Program Manager

cc: Mike Halil/J.A. Jones  
Theresa Rojas/ATL  
CCI Project File No. 281913



<b>CH2M HILL</b> <b>SOUTHDIV RAC</b> <b>N62467-01-D-0331</b>	<b>CONTRACTOR PRODUCTION REPORT</b> (ATTACH ADDITIONAL SHEETS IF NECESSARY)	DATE OF REPORT: REVISION NO: REVISION DATE:			
CTO NO:	PROJECT NAME/LOCATION:	REPORT NO:			
PROJECT NO:	SUPERINTENDENT:	SITE H&S SPECIALIST:			
AM WEATHER:	PM WEATHER:	MAX TEMP: F MIN TEMP: F			
SUMMARY OF WORK PERFORMED TODAY					
<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; margin: 0 auto; display: flex; align-items: center; justify-content: center;"> <b>JOB SAFETY</b> </div>	Was A Job Safety Meeting Held This Date? <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>TOTAL WORK HOURS ON JOB SITE THIS DATE</b> (Including Continuation Sheets)			
	Were there any lost-time accidents this date? (If Yes, attach copy of completed OSHA report) <input type="checkbox"/> Yes <input type="checkbox"/> No			CH2MHILL On-Site Hours	
	Was a Confined Space Entry Permit Administered This Date? (If Yes, attach copy of each permit) <input type="checkbox"/> Yes <input type="checkbox"/> No	JA JONES On-Site Hours			
	Was Crane/Manlift/Trenching/Scaffold/HV Elec/High Work/Hazmat Work Done?? (If Yes, attach statement or checklist showing inspection performed) <input type="checkbox"/> Yes <input type="checkbox"/> No	Subcontractor On-Site Hours			
		<b>Total On-Site Hours This Date</b>			
	Was Hazardous Material/Waste Released into the Environment? (If Yes, attach description of incident and proposed action) <input type="checkbox"/> Yes <input type="checkbox"/> No	Cumulative Total of Work Hours From Previous Report			
	<b>Total Work Hours From Start of Construction</b>				
<b>SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED</b> (Include Safety Violations, Corrective Instructions Given, Corrective Actions Taken, and Results of Safety Inspections Conducted):					
<b>EQUIPMENT/MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB</b>					
DESCRIPTION OF EQUIPMENT/MATERIAL RECEIVED	MAKE/ MODEL/ MANUFACTURER	EQUIPMENT/ LOT NUMBER	INSPECTION PERFORMED BY	NUMBER/ VOLUME/ WEIGHT	
<b>EQUIPMENT USED ON JOB SITE TODAY.</b>					
EQUIPMENT DESCRIPTION	EQUIPMENT MAKE/MODEL	SAFETY CHECK PERFORMED BY	NUMBER OF HOURS		
			USED	IDLE	REPAIR
<b>CHANGED CONDITIONS/DELAY/CONFLICTS ENCOUNTERED</b> (List any conflicts with the delivery order [i.e., scope of work and/or drawings], delays to the project attributable to site and weather conditions, etc.):					
<b>VISITORS TO THE SITE:</b>					
<b>LIST OF ATTACHMENTS</b> (OSHA report, confined space entry permit, incident reports, etc.):					
SAFETY REQUIREMENTS HAVE BEEN MET <input type="checkbox"/>					
_____ SUPERINTENDENT'S SIGNATURE				_____ DATE	







<b>CH2M HILL</b> <b>SOUTHDIV RAC</b> <b>N62467-01-D-0331</b>		<b>CONTRACTOR QUALITY CONTROL REPORT</b> (ATTACH ADDITIONAL SHEETS IF NECESSARY)			REPORT DATE: REVISION NO: REVISION DATE:	
CTO NO:		PROJECT NAME/LOCATION:			REPORT NO:	
PROJECT NO:		PROJECT QC MANAGER:		SITE H&S SPECIALIST:		
<b>SAFETY MEETINGS AND INSPECTIONS</b>						
WAS A SAFETY MEETING HELD THIS DAY?		<input type="checkbox"/> YES <input type="checkbox"/> NO		IF YES, ATTACH SAFETY MEETING MINUTES		
WAS CRANE USED ON THE SITE THIS DAY?		<input type="checkbox"/> YES <input type="checkbox"/> NO		IF YES, ATTACH DAILY CRANE REPORT OF INSPECTION AND CONTRACTOR CRANE OPERATION CHECKLIST		
<b>DEFINABLE FEATURES OF WORK STATUS</b>						
DFOW No.	Definable Feature Of Work			Preparatory	Initial	Follow-Up
1				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PREPARATORY	WAS PREPARATORY PHASE WORK PERFORMED TODAY? <input type="checkbox"/> YES <input type="checkbox"/> NO					
	IF YES, FILL OUT AND ATTACH SUPPLEMENTAL PREPARATORY PHASE CHECKLIST.					
	DFOW No.(from list above).	TASK/ACTIVITY			PREPARATORY PHASE REPORT NO.	
<b>INITIAL AND FOLLOW-UP FEATURE OF WORK COMMENTS</b>						
DFOW No.(from list above)	Phase		Comment/Finding/Action			
	Initial <input type="checkbox"/>					
	Follow up <input type="checkbox"/>					
	Initial <input type="checkbox"/>					
	Follow up <input type="checkbox"/>					
	Initial <input type="checkbox"/>					
	Follow up <input type="checkbox"/>					
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	Follow up <input type="checkbox"/>					
	Initial <input type="checkbox"/>					
	Follow up <input type="checkbox"/>					
	Initial <input type="checkbox"/>					
	Follow up <input type="checkbox"/>					
<b>REWORK ITEMS IDENTIFIED TODAY</b> (NOT CORRECTED BY CLOSE OF BUSINESS)			<b>REWORK ITEMS CORRECTED TODAY</b> (FROM REWORK ITEMS LIST)			
TASK/ACTIVITY	DATE ISSUED	DESCRIPTION	TASK/ACTIVITY	CORRECTIVE ACTION(S) TAKEN		







<b>CH2M HILL</b> <b>SOUTHDIV RAC</b> <b>N62467-01-D-0331</b>		<b>PREPARATORY PHASE REPORT</b>		REPORT NO:	REPORT DATE: REVISION NO: REVISION DATE:	CTO NO:
PROJECT NO:		DEFINABLE FEATURE OF WORK:		SITE/ACTIVITY:		
<b>PERSONNEL PRESENT</b>	GOVERNMENT REP NOTIFIED _____ HOURS IN ADVANCE: YES <input type="checkbox"/> NO <input type="checkbox"/>					
	NAME		POSITION		COMPANY/GOVERNMENT	
<b>SUBMITTALS</b>	REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER.			HAVE ALL SUBMITTALS BEEN APPROVED? YES <input type="checkbox"/> NO <input type="checkbox"/>		
	IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED?					
	ARE ALL MATERIALS ON HAND? YES <input type="checkbox"/> NO <input type="checkbox"/>					
	IF NO, WHAT ITEMS ARE MISSING?					
<b>MATERIAL STORAGE</b>	CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES).					
	COMMENTS:					
	ARE MATERIALS STORED PROPERLY? YES <input type="checkbox"/> NO <input type="checkbox"/>					
	IF NO, WHAT ACTION IS TAKEN?					
<b>SPECIFICATIONS</b>	REVIEW EACH PARAGRAPH OF SPECIFICATIONS.					
	DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK.					
	CLARIFY ANY DIFFERENCES.					
<b>PRELIMINARY WORK &amp; PERMITS</b>	ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.					
	IF NO, WHAT ACTION IS TAKEN?					



<b>CH2M HILL</b> <b>SOUTH DIV RAC</b> <b>N62467-01-D-0331</b>		<b>PREPARATORY PHASE REPORT</b>		REPORT NO:	REPORT DATE: REVISION NO: REVISION DATE:	CTO NO:
PROJECT NO:		DEFINABLE FEATURE OF WORK:		SITE/ACTIVITY:		
<b>TESTING</b>	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM.					
	TEST		FREQUENCY		PERFORMER	
	WHEN REQUIRED?					
	WHERE REQUIRED?					
	REVIEW TESTING PLAN.					
	HAVE TEST FACILITIES BEEN APPROVED?					
	TEST FACILITY				APPROVED?	
				YES <input type="checkbox"/> NO <input type="checkbox"/>		
				YES <input type="checkbox"/> NO <input type="checkbox"/>		
<b>SAFETY</b>	ACTIVITY HAZARD ANALYSIS APPROVED?				YES <input type="checkbox"/> NO <input type="checkbox"/>	
	REVIEW APPLICABLE PORTION OF EM 385-1-1.					
<b>MEETING COMMENTS</b>	NAVY/ROICC COMMENTS DURING MEETING.					
<b>OTHER ITEMS OR REMARKS</b>	OTHER ITEMS OR REMARKS:					
PROJECT QC MANAGER NAME		PROJECT QC MANAGER'S SIGNATURE		DATE		



Submittal Register

Contract Number: N62467-01D-0331			CTO No.: 12			CTO Title: NS Mayport Bldg 46 Site 1330 DPT/MIP GW Invest					Location: Mayport , Fl			Contractor: CH2M HILL Constructors, Inc.			
A	B		C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Spec Section	Item Description		Para. Number	Approving Authority	Other Reviewers	Submittal Number	Scheduled Submission Date	CCI Review Date	CCI Disposition	CCI Transmit Date	QC Admin Received Date	QC Disposition	QC Admin Transmit Date	Contracting Officer Received	Contracting Officer Disposition	Contracting Officer Return	Remarks
	SD-04	Drawings															
		As-buits															
	SD-07	Schedules															
		Project Schedule															
	SD-09	Reports															
		Sampling and Analysis Plan															
		Quality Control Plan															
		Health and safety Plan															
		Waste Management Plan															
		Environmental Protection Plan															
		Source Area Investigation Summary Report															
		Environmental Conditions Report															
	SD-12	Field Test Reports															
	SD-13	Certificates															
		Analytical Lab Certification															
		Construction Lab Certification															
		Disposal Facility Permit															
		Transport Permit															
		Land Surveyor Permit															
		Utility Excavation Permit															
		Underground Injection Permit															
		Well Driller Permit															
	SD-14	Samples															
		IDW Samples ( Water)															
		IDW Samples ( Soil )															
	SD-18	Records															
		Contaminated Soil Disposal Profile															
		Contaminated Soil Disposal Manifests															
		Contaminated Water Disposal Manifests															
		Contaminated Water Disposal Profile															
		List of Contractor Personnel															
		Contractor Production Reports															
		Contractor QC Reports															
		T & P Log															
		T & D Log															
	SD-19																



## Testing Plan and Log

**CH2M HILL Constructors, Inc.**

[illegible]



## **Appendix C**

### **Site Specific Health and Safety Plan**



**Health and Safety Plan  
Remedial Actions at Building 46, Site 1330  
Naval Station Mayport  
Mayport, Florida**

**Contract No. N62467-01-R-0331  
Contract Task Order No. 0012**

**Revision 00**

**Submitted to:**

**U.S. Naval Facilities  
Engineering Command  
Southern Division**

**Prepared by:**



**CH2MHILL**

**115 Perimeter Center Place, N.E.  
Suite 700  
Atlanta, GA 30346**

**February 2004**



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## **Attachments**

- 1 Employee Signoff Form
- 2 Project-Specific Chemical Product Hazard Communication Form
- 3 Chemical-Specific Training Form
- 4 Emergency Contacts
- 5 Project Activity Self-Assessment Checklists/Permits
- 6 Behavior Based Loss Prevention System Forms
- 7 Applicable Material Safety Data Sheets
- 8 Subcontractor H&S Plans/Procedures



# Acronyms

---

°F	degrees Fahrenheit
AHA	Activity Hazard Analysis
ALARA	as low as reasonably achievable
APR	air-purifying respirator
ATL	Atlanta
BBLPS	Behavior Based Loss Prevention System
BEI	Bechtel Environmental, Inc.
bls	below land surface
CAR	Contamination Assessment Report
CCI	CH2M HILL Constructors, Inc.
CNS	central nervous system
CPR	cardiopulmonary resuscitation
CTO	Contract Task Order
dba	decibel A-rated
DOT	Department of Transportation
DPT	direct push technology
FA	first aid
FDEP	Florida Department of Environmental Protection
FID	flame ionization detector
GCTLs	Groundwater Cleanup Target Levels
GFCI	ground fault circuit interrupter
HAZCOM	hazard communication
HR	heart rate
HSM	Health and Safety Manager
HSP	Health and Safety Plan
IDLH	immediately dangerous to life and health
IDW	investigation-derived waste
IRA	Interim Remedial Action
IRF	Incident Report Form
lb	pound
LEL	lower explosive limit
LPO	Loss Prevention Observation
mg/m <sup>3</sup>	milligrams per cubic meter
MIP	membrane interface probe
MOP	Monitoring Only Plan
MSDS	Material Safety Data Sheet
MTBE	methyl tertiary butyl ether
mW/cm <sup>2</sup>	milliwatt per square centimeter
NAS	Naval Air Station
NAVFAC EOF SOUTH	Naval Facilities Engineering Command, Southern Division
NDG	nuclear density gauge
NLI	Near Loss Investigation
NSC	National Safety Council
Omega	Omega Environmental Services, Inc.



OSHA	Occupational Safety and Health Administration
PAPR	powered air-purifying respirator
PDF	personal flotation device
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million
RMSF	Rocky Mountain Spotted Fever
SA	Site Assessment
SAR	supplied-air respirator
SCBA	self-contained breathing apparatus
SHSS	Site Health and Safety Specialist
SOP	standard of practice
STEL	short-term exposure limit
SZ	support zone
TBD	to be determined
TMCC	truck-mounted crash cushion
TSDF	treatment, storage, and disposal facility
TtNUS	Tetra Tech NUS, Inc.
USEPA	U.S. Environmental Protection Agency
UST	Underground storage tank
VOC	volatile organic compound



This Health and Safety Plan (HSP) will be kept on the site during field activities and will be reviewed as necessary. The plan will be amended or revised as project activities or conditions change or when supplemental information becomes available. The plan adopts, by reference, the Standards of Practice (SOPs) in the CH2M HILL *Corporate Health and Safety Program, Program and Training Manual*, as appropriate. In addition, this plan adopts procedures in the project Work Plan. The Site Health and Safety Specialist (SHSS) is to be familiar with these SOPs and the contents of this plan. CH2M HILL Constructors Inc.'s (CCI's) personnel and subcontractors must sign Attachment 1.



# 1.0 Project Information and Description

---

**Contract Task Order (CTO) No.:** CTO 0010

**Client:** Southern Division, U.S. Navy Facilities Engineering Command (NAVFAC EDF SOUTH)

**Project/Site Name:** Remedial Actions at Building 46, Site 1330 Naval Station Mayport Mayport, Florida

**Site Address:** Naval Station Mayport  
Mayport, Florida

**CH2M HILL Project Manager:** Mike Halil; Jeff Marks - J.A. Jones

**CH2M HILL Office:** Jacksonville FL

**Date Health and Safety Plan Prepared:** January 2004

**Date(s) of Site Work:** January 2004 - January 2005

**Site Background and Setting:** Site 1330 includes Building 46 and extends approximately 200 feet north of the building, west of Building 46 to the taxiway, and east of Building 46 to include Bravo Pier. Site 1330 is a large, mostly asphalt covered area with Building 46 located near the center of the investigation area. Building 46 is a recreation hall and a laundromat for Navy personnel and Bravo Pier is an operational pier.

Utilities are present in the pier area and include active; electrical distribution lines, pressurized steam lines, fuel oil product lines, sewage collection lines, potable water lines, oily wastewater oil lines, telephone and cable television lines. Cement structures fitted with utility access points or "igloos" dot the pier providing utility service hook-ups such as electricity, petroleum fuel, steam, oily wastewater return, and water to the docked ships. No overhead utilities are present.

Site 1330 is the location of a former fuel depot that reportedly began operations in 1944. This facility distributed "high octane" and "low octane" fuels to ships and seaplanes docked at the turning basin. The facility consisted of a series of four 25,000-gallon, circular concrete underground storage tanks (USTs) (numbered 39, 39A, 39B, and 40) connected by 3-inch and 4-inch underground piping that ran to the turning basin. The 25,000-gallon tanks were located approximately 200 to 300 feet west of the ship basin near the airport taxiway. A large soil mound that measured 400 feet long by 240 feet wide by 4 feet high apparently covered the 25,000-gallon tanks. According to design drawings, the main portion of these tanks were about 10 feet below land surface (bls).

These tanks and associated piping were allegedly removed sometime in the early 1950s. In 1969, aboveground storage tanks (numbered 1330 and 1331) holding lubrication oils for the ships were installed along the taxiway in the area between the footprints of the former cement USTs. Although the history of these tanks is not well documented, they reportedly were removed in December 1986 or 1988.



A Contamination Assessment Report (CAR) detailing the fuel distribution area located along the taxiway for Site 1330 was prepared by the United States Army Corps of Engineers (USACE) and submitted to the FDEP in May 1992. The FDEP submitted comments in June 1992 requesting additional assessment work due to the presence of impacted soil and groundwater from the fuel distribution system, which included the Bravo Pier. The requested supplemental work was performed in October 1992, and a CAR Addendum was submitted in December 1992. The FDEP submitted comments to the CAR addendum in February 1993 requesting removal of petroleum-contaminated soils and additional information about the Bravo Pier soil contamination discovered during the original CAR. Responses to these comments were addressed in March 1993, stating that a soil removal contract would be initiated for Site 1330, and further investigations would be conducted at the Bravo Pier site. At this time, it was not known that concrete USTs were still in place along the airport taxiway. Two areas of investigation emerged as potential sites for additional investigation, the former USTs near the taxiway and the release at Bravo Pier.

During November 1993, the Navy contracted Omega Environmental Services, Inc. (Omega) to remove the contaminated soil at the former UST site. It was discovered during the soil removal process that at least one of the tanks (Tank 39) was still in place. This tank was subsequently abandoned in place by Omega. In December 1993, NS Mayport sent an Interim Report to FDEP detailing this discovery of three additional USTs (39A, 39B, and 40) and proposed a plan of action. The tanks were abandoned in place by Bechtel Environmental, Inc. (BEI) and closure reports were submitted in July 1995 to the FDEP representing two separate tank closure activities at Site 1330 one for Tank 39 in December 1993 by Omega and one for Tanks 39A, 39B, and 40 by BEI in 1995.

Between August and September 1995, BEI also performed an Interim Remedial Action (IRA) at Bravo Pier. These activities were completed in response to recommendations made during the CAR for Site 1330. During the assessment of Site 1330, pressure tests were performed on fuel lines that were located in the area of contamination. At this time, a small leak was detected from the JP-5 lateral line valve connection. BEI removed approximately 23 tons of impacted soil, an area of 12 feet by 9 feet by 7.5 feet deep. As a result of the work plan limitations, the area of "excessively contaminated" soils was not delineated.

In January 1999, Tetra Tech NUS, Inc. (TtNUS) completed a Site Assessment Report at Bravo Pier (the location of the JP-5 line leak), identifying petroleum-impacted groundwater, but no petroleum impacted soils. Isopropylbenzene was the only contaminant detected that exceeded FDEP Groundwater Cleanup Target Levels (GCTLs). As a result, no recommendations of additional measures to assess or remediate the Bravo Pier JP-5 fuel leak were instituted since the release was not determined to be related to the leaking product line. The source of the isopropylbenzene release was considered a separate release.

Between the time of the Bravo Pier SA in 1999 and the tank closures in 1995, FDEP gave final approval of a Monitoring Only Plan (MOP) for Site 1330 that was granted in a letter to the Navy dated 17 February 1997 and was carried out by the USACE. Subsequent sampling and analysis for United States Environmental Protection Agency (USEPA) Method 602 (including MTBE) performed during monitoring indicated a continuation and worsening trend of matrix interferences to the target analyses. Isopropylbenzene was later learned to be the laboratory matrix interference, but this was not understood during the initial monitoring of Site 1330. The full VOC parameter, which includes isopropylbenzene, was not analyzed



until it became apparent during the TtNUS January 1999 Site Assessment (SA) that isopropylbenzene was also impacting Site 1330, which was located across Maine Street to the west.

An isopropylbenzene plume delineation map is provided as Figure 1-1 of the work plan. Isopropylbenzene concentrations have remained mostly consistent since monitoring of the compound began in 1998.

**Description of Specific Tasks to be Performed:** The activities associated with the scope of work outlined in this Work Plan Addendum are as follows:

- Mobilization and Site Preparation
- Utility Locates
- Source Area Investigation Utilizing Direct Push Technology (DPT)/Membrane Interface Probe (MIP)
- Site Survey
- Demobilization
- Preparation and Submittal of a Source Area Investigation Summary Report



## 2.0 Tasks to be Performed Under this Plan

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### 2.1 Description of Tasks

(Reference Field Project Start-up Form)

Refer to project documents (i.e., Work Plan) for detailed task information. A health and safety risk analysis (Section 1.2) has been performed for each task and is incorporated in this plan through task-specific hazard controls and requirements for monitoring and protection. Tasks other than those listed below require an approved amendment or revision to this plan before tasks begin. Refer to Section 8.2 for procedures related to "clean" tasks that do not involve hazardous waste operations and emergency response (Hawwoper).

#### 2.1.1 Hawwoper-Regulated Tasks

- Mobilization and Site Preparation
- Utility Locates
- Source Area Investigation Utilizing Direct Push Technology (DPT)/Membrane Interface Probe (MIP)
- Site Survey
- Demobilization

#### 2.1.2 Non-Hawwoper-Regulated Tasks

Under specific circumstances, the training and medical monitoring requirements of federal or state Hawwoper regulations are not applicable. It must be demonstrated that the tasks can be performed without the possibility of exposure in order to use non-Hawwoper-trained personnel. Prior approval from the Health and Safety Manager (HSM) is required before these tasks are conducted on regulated hazardous waste sites.

Tasks	Controls
<ul style="list-style-type: none"><li>• Preparation and Submittal of a Source Area Investigation Summary Report</li></ul>	<ul style="list-style-type: none"><li>• Brief on hazards, limits of access, and emergency procedures</li></ul>



TABLE 2-1

## Hazard Analysis

(Refer to Section 3 for hazard controls)

Potential Hazards	Project Activities				
	Mobilization and Site Preparation	Utility Locates	Source Area Investigation Utilizing Direct Push Technology (DPT)/Membrane Interface Probe (MIP)	Site Survey	Demobilization
Manual Lifting (HS-29)	X	X	X	X	X
Fire Prevention (HS-22)	X		X		
Electrical Safety (HS-23)	X		X		X
Lockout /Tagout (HS-33)	X				X
Ladders & Stairs(HS-25)					
Compressed Gas Cylinders (HS-63)					
Buried Utilities		X	X		
Excavations (HS-32)					
Fall Protection (HS-31)					
Heavy Equipment ( HS-27)	X		X		X
Confined Space Entry (HS-17)					
Concrete & Masonry Work (HS-43)					
Cranes and Hoisting (HS-44)					
Demolition (HS-45)					
Scaffolding(HS-73)					
Steel erection (HS-62)					
Welding and cutting (HS-22)					
Aerial Lifts (HS-41)					
Hand & Power Tools (HS-50)	X	X	X	X	X
Forklifts (HS-48)	X				X
Drilling (HS_35)			X		
Noise (HS-39)	X		X		X
Pressurized Lines/Equipment			X		
Pressure Washing/Equip Decon			X		X
Vacuum Truck/Pumping Operations					
Suspended Loads					
Vehicle Traffic	X	X	X	X	X
Haul Truck Operations					
Visible Lighting	X		X		X
Mechanical Guarding Hazards			X		
Asbestos Hazard					
Lead Hazard					
Chemical Hazard-Dermal/Inhalation			X		
Dust Hazard (Silica/Metals)			X		
Fire/Explosion Hazards			X		



## 3.0 Hazard Controls

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This section provides safe work practices and control measures used to reduce or eliminate potential hazards. These practices and controls are to be implemented by the party in control of either the site or the particular hazard. CH2M HILL employees and subcontractors must remain aware of the hazards affecting them regardless of who is responsible for controlling the hazards. CH2M HILL employees and subcontractors who do not understand any of these provisions should contact the SHSS for clarification.

The health and safety hazards posed by field activities have been identified for each project activity and is provided in the Hazard Analysis Table (Table 2-1) in this section. Hazard control measures for project-specific and general H&S hazards are provided in 3-1 and 3-2 of this section.

Activity Hazard Analysis will be prepared before beginning each project activity posing H&S hazards to project personnel using the AHA form provided in the HSP Attachments as a guide. The AHA shall identify the work tasks required to perform each activity, along with potential H&S hazards and recommended control measures for each work task. In addition, a listing of the equipment to be used to perform the activity, inspection requirements and training requirements for the safe operation of the equipment listed must be identified. AHAs will be submitted to the Navy Technical Representative (NTR) for review at least 15 days prior to the start of each project activity phase.

In addition to the controls specified in this section, Project-Activity Self-Assessment Checklists are contained in Attachment 5. These checklists are to be used to assess the adequacy of CCI and subcontractor site-specific safety requirements. The objective of the self-assessment process is to identify gaps in project safety performance, and prompt for corrective actions in addressing these gaps. Self-assessment checklists should be completed early in the project, when tasks or conditions change, or when otherwise specified by the HSM. The self-assessment checklists, including documented corrective actions, should be made part of the permanent project records.

Project-activity self-assessments checklist will be completed weekly by the SHSS during the course of the project, completing the applicable checklist depending on the work performed at the time on the project.

### 3.1 Project-Specific Hazards

#### 3.1.1 Drilling Safety

- At no time shall the drill rig be operated without a qualified operator and safety observer being in the immediate area.
- Safety observers must be trained on how to properly secure the equipment in case of an emergency.



- The drill rig is not to be operated in inclement weather.
- The driller is to verify that the rig is properly leveled and stabilized before raising the mast.
- Personnel should be cleared from the sides and rear of the rig before the mast is raised.
- The driller is not to drive the rig with the mast in the raised position.
- The driller must check for overhead power lines before raising the mast. A minimum distance of 15 feet between mast and overhead lines (<50 kV) is recommended. Increased separation may be required for lines greater than 50 kV.
- A documented safety inspection of the drill rig will be performed prior to the first operation of the day.
- All safety hazards will be corrected prior to the drill rig being operated.
- Personnel should stand clear before rig startup.
- The driller is to verify that the rig is in neutral when the operator is not at the controls.
- Become familiar with the hazards associated with the drilling method used (cable tool, air rotary, hollow-stem auger, etc.).
- Do not wear loose-fitting clothing, watches, etc., that could get caught in moving parts.
- Do not smoke or permit other spark-producing equipment around the drill rig.
- The drill rig must be equipped with a kill wire or switch, and personnel are to be informed of its location.
- Be aware and stand clear of heavy objects that are hoisted overhead.
- The driller is to verify that the rig is properly maintained in accordance with the drilling company's maintenance program.
- The driller is to verify that all machine guards are in place while the rig is in operation.
- The driller is responsible for housekeeping (maintaining a clean work area). This includes but may not be limited to containing slurry which may be a by-product of the drilling.
- The drill rig should be equipped with at least one fire extinguisher.

**Note:** If the drill rig comes into contact with electrical wires and becomes electrically energized, do not touch any part of the rig or any person in contact with the rig, and stay as far away as possible. Notify emergency personnel immediately

### **3.1.2 Welding/Cutting with Compressed Gas Cylinders**

(Reference CH2M HILL, SOP HS-22, *Welding and Cutting*)

- Complete hot work permit.
- Wear appropriate personal protective equipment.



- Remove or combustible materials in the immediate hot work area.
- Station fire watch with fire extinguisher.
- Valve caps must be in place when cylinders are transported, moved, or stored.
- Cylinder valves must be closed when cylinders are not being used and when cylinders are being moved.
- Cylinders must be secured in an upright position at all times.
- Cylinders must be positioned to avoid being struck or knock over; coming in contact with electrical circuits or extreme heat sources; and shielded from welding and cutting operations.
- Cylinders must be secured on a cradle, basket or pallet when hoisted; they may not be hoisted by choker slings.

### **3.1.3 Working Around Material Handling Equipment**

- Never approach operating equipment from the rear. Always make positive contact with the operator, and confirm that the operator has stopped the motion of the equipment.
- Never approach the side of operating equipment; remain outside of the swing and turning radius.
- Maintain distance from pinch points of operating equipment.
- Because heavy equipment may not be equipped with properly functioning reverse signal alarms, never turn your back on any operating equipment.
- Never climb onto operating equipment or operate contractor/subcontractor equipment.
- Never ride contractor/subcontractor equipment unless it is designed to accommodate passengers; equipped with firmly attached passenger seat.
- Never work or walk under a suspended load.
- Never use equipment as a personnel lift; do not ride excavator buckets or crane hooks.
- Always stay alert and maintain a safe distance from operating equipment, especially equipment on cross slopes and unstable terrain.

### **3.1.4 Cranes and Rigging**

(Reference CH2M HILL, SOP HS-44, *Cranes, Hoists and Rigging*)

- The Navy Contracting Officer and the Navy Technical Representative will be notified at least 15 days prior to bringing crane equipment on-site.
- A Certificate of Compliance for each crane will be provided and posted on each crane.
- Crane inspection reports are required to be in accordance with EM 385-1-1 with Daily Reports of Inspections.



- Cranes will be operated by a trained, qualified, and certified crane operator who has been trained not to bypass safety devices (e.g., anti-two block devices) during lifting operations.
- A critical lift plan will be submitted according to EM 385-1-1 section 16 when crane loads meet or exceed 75 percent of the crane load capacity in any configuration.
- The crane's operations manual and load chart specifically designed for the crane will be on the crane at all times.
- The crane must have a current annual inspection to include load test certification (within the last 12 months) that meet all state and federal safety standards. Documentation of this inspection must be available for review.
- A competent person will inspect the crane daily to ensure it is in safe operating condition.
- All rigging equipment must be inspected by a competent person prior to use for signs of excessive wear; equipment found to be damaged will be tagged and removed from service.
- A pre-lift meeting will be conducted to include all parties involved in that days crane operation.
- Only one person will signal the crane operator. This person will be thoroughly familiar with all of the cranes operation and be able to communicate with the crane operator with the appropriate hand signals.
- No personnel will be permitted under the load at any time.
- Tag lines will be attached to every load being made by the crane.
- The swing radius of the rear rotating superstructure (counterweight) of the crane will be barricaded and no entrance allowed.
- No part of the crane will come within 10 feet of overhead electrical powerlines rated 50 kV or less. For lines over 50 kV, increase clearance distance by 4 inches for every 10 kV over 50kV.
- A Weight Handling Equipment Incident Report will be provided to the Contracting Officer within 30 days of any accident.

### **3.1.5 Excavation Activities**

(Reference CH2M HILL, SOP HS-32, *Excavation and Trenching*)

- CCI personnel must notify and be granted authorization from the excavation competent person prior to entering any excavation. CCI personnel must follow all excavation requirements established by the competent person.
- The competent person must inspect the trench and/or excavation everyday and after everyday hazard increasing event. Documentation of this inspection must be maintained onsite at all times.



- Excavations must be protected from cave-ins by adequate protective systems unless the excavation is less than 5 feet in depth and a competent person determines there is no indication of cave-in or the excavation is made entirely in stable rock that is not fractured.
- Prior to excavating at a location, buried utilities in the area must be identified; refer to Section 2.2.8 "Procedures for locating buried utilities".
- CCI personnel must not enter any excavation where protective systems are deficient at any time, for any reason. The competent person must be notified of such conditions.
- Refer to CH2M HILL SOP HS-32 "Excavations and Trenching" for more specific details on excavation requirements.

### **3.1.6 Operating Heavy Equipment**

(Reference CH2M HILL, SOP HS-27, *Earthmoving Equipment*)

- CCI authorizes only those employees qualified by training or previous experience to operate material handling equipment.
- Equipment must be checked at the beginning of each shift to ensure the equipment is in safe operating condition and free of apparent damage. The check should include: service brakes, parking brakes, emergency brakes, tires, horn, back-up alarm, steering mechanism, coupling devices, seat belts and operating controls. All defects will be corrected before the equipment is placed in service. Documentation of this inspection must be maintained onsite at all times.
- Equipment must be on a stable foundation such as solid ground or cribbing; outriggers are to be fully extended.
- Equipment must not be used to lift personnel; loads must not be lifted over the heads of personnel.
- Equipment, or parts thereof, which are suspended must be substantially blocked or cribbed to prevent shifting before personnel are permitted to work under or between them. All controls will be in a neutral position, with the motors stopped and brakes set.
- Equipment which is operating in reverse must have a reverse signal alarm distinguishable from the surrounding noise or a signal person when the operators view is obstructed.
- When equipment is used near energized powerlines, the closest part of the equipment must be at least 10' from the powerlines < 50 kV. Provide an additional 4' for every 10 kV over 50 kV. A person must be designated to observe clearances and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means. All overhead powerlines must be considered to be an energized until the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded.
- Underground utility lines must be located before excavation begins; refer to Section 3.2.11 "Procedures for Locating Buried Utilities."



- Operators loading/unloading from vehicles are responsible for seeing that vehicle drivers are in the vehicle cab or in a safe area.
- The parking brake will be set whenever equipment is parked, wheels must be chocked when parked on inclines.
- When not in operation, the blade/bucket must be blocked or grounded; the master clutch must be disengaged when the operator leaves the cab. When equipment is unattended, power must be shut off, brakes set, blades/buckets landed and shift lever in neutral.

### **3.1.7 Fall Protection Activities**

(Reference CH2M HILL, SOP HS-31, *Fall Protection*)

- CCI personnel exposed to fall hazards must complete the Fall Protection training course in the Basic Program and receive project-specific fall protection training. Personnel may not use fall protection systems on which they have not been trained.
- The CCI Site Health and Safety Specialist (SHSS) must complete the Project Fall Protection Evaluation Form and provide project-specific fall protection training to all CCI personnel exposed to fall hazards. The Project Fall Protection Evaluation Form is provided in Attachment 5.
- Fall protection systems must be used to eliminate fall hazards of 6 feet or greater.
- All components of the personal fall arrest system must be inspected for proper working condition prior to each use.
- Personal fall arrest system anchorages must be capable of supporting 5,000 pounds per individual.
- Refer to CH2M HILL SOP HS-31 "Fall Protection" for more specific details on fall protection requirements.

### **3.1.8 Lockout/Tagout Activities**

(Reference CH2M HILL, SOP HS-33, *Lockout and Tagout*)

- Only qualified personnel may work on energized equipment that has not been deenergized by lockout/tagout procedures.
- When CCI controls the work, CCI must verify that subcontractors affected by the unexpected operation of equipment develop a written lockout/tagout program, provide training on lockout/tagout procedures and coordinate its program with other affected subcontractors. This may include compliance with the owner or facility lockout/tagout program.
- When CH2M HILL personnel are affected by the unexpected operation of equipment they must complete the lockout/tagout training course in the Basic Program. Project training may also be required on site specific lockout procedures.



- Standard lockout/tagout procedures include the following six steps: 1) notify all personnel in the affected area of the lockout/tagout, 2) shut down the equipment using normal operating controls, 3) isolate all energy sources, 4) apply individual lock and tag to each energy isolating device, 5) relieve or restrain all potentially hazardous stored or residual energy, and 6) verify that isolation and deenergization of the equipment has been accomplished. Once verified that the equipment is at the zero energy state, work may begin.
- All safe guards must be put back in place, all affected personnel notified that lockout has been removed and controls positioned in the safe mode prior to lockout removal. Only the individual who applied the lock and tag may remove them.
- Refer to CH2M HILL SOP HS-33 "Lockout and Tagout" for more specific details on lockout/tagout requirements.

### **3.1.9 Use of Aerial Lifts**

(Reference CH2M HILL, SOP HS-41, *Aerial Lifts*)

- Only authorized personnel are permitted to operate aerial lifts.
- Personnel will wear a full body harness and attach their lanyard to the boom or basket; never attach to an adjacent structure. Personnel working in or operating a scissor lift are not required to wear fall protection as long as they are working totally within the confines of the lift, with both feet on the floor of the lift.
- Personnel will remain in the basket at all times and will not climb on the lift to gain access to elevated work location.
- Personnel will always stand on the floor of the basket and not on the guardrails, planks, ladders or other devices to extend reach.
- Aerial lifts will be positioned on level surfaces when possible and the brakes will be set. If outriggers are provided, they will be positioned on solid surfaces or cribbing. Wheel chocks will be installed before using lifts on inclines.
- Lifts will be provided with upper and lower controls and these controls will be tested for proper function before each days use. The lower controls will not be operated unless permission has been obtained from personnel in the lift, except in the case of emergency.
- Boom and basket load limits, as specified by the manufacturer, will be known and will not be exceeded.
- Aerial lifts will be prohibited from moving with workers in the basket, unless specifically designed for this type of operation.
- Personnel will not work on elevated platforms when winds exceed 20 miles per hour.
- Lifts will be lowered before moving horizontally.
- An aerial lift will not be used as a material hoist.



### **3.1.10 Forklift Operations**

Forklifts may be required for materials movement during project activities. Forklifts present the potential for damage to equipment, materials and personnel by impaling or striking personnel or materials with the forklift tines. Additionally, forklifts may tip if they are incorrectly loaded, driven at excessive speeds or operated with the forks too high.

The following rules apply whenever a forklift is used on the project:

- A rated lifting capacity must be posted in a location readily visible to the operator.
- A forklift truck must not be used to elevate employees unless a platform with guardrails, a back guard, and a kill switch is provided on the vehicle. When guardrails are not possible, fall arrest protection is required.
- The subcontractor operating the forklift must post and enforce a set of operating rules for forklift trucks.
- Only trained and authorized drivers will operate forklifts.
- Stunt driving and horseplay are prohibited.
- Employees must not ride on the forks.
- Employees must never be permitted under the forks (unless forks are blocked).
- The driver must inspect the forklift once a shift and document this inspection.
- The operator must look in the direction of travel and must not move the vehicle until all persons are clear of the vehicle.
- Forks must be carried as low as possible.
- The operator must lower the forks, shut off the engine, and set the brakes (or block the wheels) before leaving the forklift operator's position unless maintenance or safety inspections require the forklift to be running.
- Trucks must be blocked and have brakes set when forklifts are driven onto their beds.
- Extreme care must be taken when tilting elevated loads.
- Every forklift must have operable brakes capable of safely stopping it when fully loaded.
- Forklifts must have parking brakes and an operable horn.

When the operator is exposed to possible falling objects, industrial trucks must be equipped with overhead protection (canopy).

### **3.1.11 Rigging**

- Stay as clear as possible of all hoisting operations. Loads will not be hoisted overhead of personnel.
- Hoists will not be used to lift or lower personnel.



- Do not exceed hoist load limits.
- Ensure load is level and stable before hoisting
- Inspect all rigging equipment prior to use. Do not use defective rigging for any reason.
- Only use rigging equipment for the purpose it was designed and intended.
- A Weight Handling Equipment Incident Report will be provided to the Contracting Officer within 30 days of any accident.

## 3.2 General Hazards

### 3.2.1 General Practices and Housekeeping

(Reference CH2M HILL- SOP HS-20, *General Practices*)

- Site work should be performed during daylight hours whenever possible. Work conducted during hours of darkness require enough illumination intensity to read a newspaper without difficulty.
- Good housekeeping must be maintained at all times in all project work areas.
- Common paths of travel should be established and kept free from the accumulation of materials.
- Keep access to aisles, exits, ladders, stairways, scaffolding, and emergency equipment free from obstructions.
- Provide slip-resistant surfaces, ropes, and/or other devices to be used.
- Specific areas should be designated for the proper storage of materials.
- Tools, equipment, materials, and supplies will be stored in an orderly manner.
- As work progresses, scrap and unessential materials must be neatly stored or removed from the work area.
- Containers should be provided for collecting trash and other debris and will be removed at regular intervals.
- All spills will be quickly cleaned up. Oil and grease will be cleaned from walking and working surfaces.

### 3.2.2 Hazard Communication

(Reference CH2M HILL-SOP HS-05, *Hazard Communication*)

The SHSS is to perform the following:

- Complete an inventory of chemicals brought on site by CCI using Attachment 2.
- Confirm that an inventory of chemicals brought on site by CCI subcontractors is available.



- Request or confirm locations of Material Safety Data Sheets (MSDSs) from the client, contractors, and subcontractors for chemicals to which CCI employees potentially are exposed.
- Before or as the chemicals arrive on site, obtain an MSDS for each hazardous chemical.
- Label chemical containers with the identity of the chemical and with hazard warnings, and store properly.
- Give employees required chemical-specific HAZCOM training using Attachment 3.
- Store all materials properly, giving consideration to compatibility, quantity limits, secondary containment, fire prevention, and environmental conditions.

### **3.2.3 Shipping and Transportation of Chemical Products**

(Reference CH2M HILL's Procedures for Shipping and Transporting Dangerous Goods)

Chemicals brought to the site might be defined as hazardous materials by the U.S. Department of Transportation (DOT). All staff who ship the materials or transport them by road must receive CH2M HILL training in shipping dangerous goods. All hazardous materials that are shipped (e.g., via Federal Express) or are transported by road must be properly identified, labeled, packed, and documented by trained staff. Contact the HSM or the Equipment Coordinator for additional information.

### **3.2.4 Lifting**

(Reference CH2M HILL-SOP HS-29, *Lifting*)

Proper lifting techniques must be used when lifting any object, including:

- Plan storage and staging to minimize lifting or carrying distances.
- Split heavy loads into smaller loads.
- Use mechanical lifting aids whenever possible.
- Have someone assist with the lift—especially for heavy or awkward loads.
- Make sure the path of travel is clear prior to the lift.

### **3.2.5 Fire Prevention**

(Reference CH2M HILL- SOP HS-22, *Fire Prevention*)

- Fire extinguishers will be provided so that the travel distance from any work area to the nearest extinguisher is less than 100 feet. When 5 gallons or more of a flammable or combustible liquid is being used, an extinguisher must be within 50 feet. Extinguishers must:
  - be maintained in a fully charged and operable condition,
  - be visually inspected each month, and
  - undergo a maintenance check each year.
- The area in front of extinguishers must be kept clear.
- Post "Exit" signs over exiting doors, and post "Fire Extinguisher" signs over extinguisher locations.



- Combustible materials stored outside should be at least 10 feet from any building.
- Solvent waste and oily rags must be kept in a fire resistant, covered container until removed from the site.
- Flammable/combustible liquids must be kept in approved containers, and must be stored in an approved storage cabinet.

### 3.2.6 Electrical

(Reference CH2M HILL-SOP HS-23, *Electrical*)

- Only qualified personnel are permitted to work on unprotected energized electrical systems.
- Only authorized personnel are permitted to enter high-voltage areas.
- Do not tamper with electrical wiring and equipment unless qualified to do so. All electrical wiring and equipment must be considered energized until lockout/tagout procedures are implemented.
- Inspect electrical equipment, power tools, and extension cords for damage prior to use. Do not use defective electrical equipment, remove from service.
- All temporary wiring, including extension cords and electrical power tools, must have ground fault circuit interrupters (GFCIs) installed.
- Extension cords must be:
  - equipped with third-wire grounding.
  - covered, elevated, or protected from damage when passing through work areas.
  - protected from pinching if routed through doorways.
  - not fastened with staples, hung from nails, or suspended with wire.
- All electrical tool power cords, temporary wiring and/or electrical extension cords must be splice free.
- Electrical power tools and equipment must be effectively grounded or double-insulated UL approved.
- Operate and maintain electric power tools and equipment according to manufacturers' instructions.
- Maintain safe clearance distances between overhead power lines and any electrical conducting material unless the power lines have been de-energized and grounded, or where insulating barriers have been installed to prevent physical contact. Maintain at least 10 feet from overhead power lines for voltages of 50 kV or less, and 10 feet plus ½ inch for every 1 kV over 50 kV.
- Temporary lights will not be suspended by their electric cord unless designed for suspension. Lights will be protected from accidental contact or breakage.
- Protect all electrical equipment, tools, switches, and outlets from environmental elements.



### 3.2.7 Stairways and Ladders

(Reference CH2M HILL-SOP HS-25, *Stairways and Ladders*)

- Stairway or ladder is generally required when a break in elevation of 19 inches or greater exists.
- Personnel should avoid using both hands to carry objects while on stairways; if unavoidable, use extra precautions.
- Personnel must not use pan and skeleton metal stairs until permanent or temporary treads and landings are provided the full width and depth of each step and landing.
- Ladders must be inspected by a competent person for visible defects prior to each day's use. Defective ladders must be tagged and removed from service.
- Ladders must be used only for the purpose for which they were designed and will not be loaded beyond their rated capacity.
- Only one person at a time will climb on or work from an individual ladder.
- User must face the ladder when climbing; keep belt buckle between side rails
- Ladders will not be moved, shifted, or extended while in use.
- User must use both hands to climb; use rope to raise and lower equipment and materials
- Straight and extension ladders must be tied off to prevent displacement
- Ladders that may be displaced by work activities or traffic must be secured or barricaded
- Portable ladders must extend at least 3 feet above landing surface
- Straight and extension ladders must be positioned at such an angle that the ladder base to the wall is one-fourth of the working length of the ladder
- Stepladders are to be used in the fully opened and locked position
- Users are not to stand on the top two steps of a stepladder; nor are users to sit on top or straddle a stepladder
- Fixed ladders > 24 feet in height must be provided with fall protection devices.
- Fall protection should be considered when working from extension, straight, or fixed ladders greater than six feet from lower levels and both hands are needed to perform the work, or when reaching or working outside of the plane of ladder side rails.

### 3.2.8 Heat Stress

(Reference CH2M HILL- SOP HS-09, *Heat and Cold Stress*)

- Drink 16 ounces of water before beginning work. Disposable cups and water maintained at 50°F to 60°F should be available. Under severe conditions, drink one to two cups every 20 minutes, for a total of 1 to 2 gallons per day. Do not use alcohol in place of water or



other nonalcoholic fluids. Decrease your intake of coffee and caffeinated soft drinks during working hours.

- Acclimate yourself by slowly increasing workloads (e.g., do not begin with extremely demanding activities).
- Use cooling devices, such as cooling vests, to aid natural body ventilation. These devices add weight, so their use should be balanced against efficiency.
- Use mobile showers or hose-down facilities to reduce body temperature and cool protective clothing.
- Conduct field activities in the early morning or evening and rotate shifts of workers, if possible.
- Avoid direct sun whenever possible, which can decrease physical efficiency and increase the probability of heat stress. Take regular breaks in a cool, shaded area. Use a wide-brim hat or an umbrella when working under direct sun for extended periods.
- Provide adequate shelter/shade to protect personnel against radiant heat (sun, flames, hot metal).
- Maintain good hygiene standards by frequently changing clothing and showering.
- Observe one another for signs of heat stress. Persons who experience signs of heat syncope, heat rash, or heat cramps should consult the SHSS to avoid progression of heat-related illness.

Symptoms and Treatment of Heat Stress					
	Heat Syncope	Heat Rash	Heat Cramps	Heat Exhaustion	Heat Stroke
<b>Signs and Symptoms</b>	Sluggishness or fainting while standing erect or immobile in heat.	Profuse tiny raised red blister-like vesicles on affected areas, along with prickling sensations during heat exposure.	Painful spasms in muscles used during work (arms, legs, or abdomen); onset during or after work hours.	Fatigue, nausea, headache, giddiness; skin clammy and moist; complexion pale, muddy, or flushed; may faint on standing; rapid thready pulse and low blood pressure; oral temperature normal or low	Red, hot, dry skin; dizziness; confusion; rapid breathing and pulse; high oral temperature.
<b>Treatment</b>	Remove to cooler area. Rest lying down. Increase fluid intake. Recovery usually is prompt and complete.	Use mild drying lotions and powders, and keep skin clean for drying skin and preventing infection.	Remove to cooler area. Rest lying down. Increase fluid intake.	Remove to cooler area. Rest lying down, with head in low position. Administer fluids by mouth. Seek medical attention.	Cool rapidly by soaking in cool—but not cold—water. Call ambulance, and get medical attention immediately!



## Monitoring Heat Stress

These procedures should be considered when the ambient air temperature exceeds 70°F, the relative humidity is high (>50 percent), or when workers exhibit symptoms of heat stress.

The heart rate (HR) should be measured by the radial pulse for 30 seconds, as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 100 beats/minute, or 20 beats/minute above resting pulse. If the HR is higher, the next work period should be shortened by 33 percent, while the length of the rest period stays the same. If the pulse rate still exceeds 100 beats/minute at the beginning of the next rest period, the work cycle should be further shortened by 33 percent. The procedure is continued until the rate is maintained below 100 beats/minute, or 20 beats/minute above resting pulse.

### 3.2.9 Cold Stress

(Reference CH2M HILL- SOP HS-09, *Heat and Cold Stress*)

- Be aware of the symptoms of cold-related disorders, and wear proper, layered clothing for the anticipated fieldwork. Appropriate rain gear is a must in cool weather.
- Consider monitoring the work conditions and adjusting the work schedule using guidelines developed by the U.S. Army (wind-chill index) and the National Safety Council (NSC).
- Wind-Chill Index is used to estimate the combined effect of wind and low air temperatures on exposed skin. The wind-chill index does not take into account the body part that is exposed, the level of activity, or the amount or type of clothing worn. For those reasons, it should only be used as a guideline to warn workers when they are in a situation that can cause cold-related illnesses.
- NSC Guidelines for Work and Warm-Up Schedules can be used with the wind-chill index to estimate work and warm-up schedules for fieldwork. The guidelines are not absolute; workers should be monitored for symptoms of cold-related illnesses. If symptoms are not observed, the work duration can be increased.
- Persons who experience initial signs of immersion foot, frostbite, hypothermia should consult the SHSS to avoid progression of cold-related illness.
- Observe one another for initial signs of cold-related disorders.
- Obtain and review weather forecast – be aware of predicted weather systems along with sudden drops in temperature, increase in winds, and precipitation.



Symptoms and Treatment of Cold Stress			
	Immersion (Trench) Foot	Frostbite	Hypothermia
<b>Signs and Symptoms</b>	Feet discolored and painful; infection and swelling present.	Blanched, white, waxy skin, but tissue resilient; tissue cold and pale.	Shivering, apathy, sleepiness; rapid drop in body temperature; glassy stare; slow pulse; slow respiration.
<b>Treatment</b>	Seek medical treatment immediately.	Remove victim to a warm place. Re-warm area quickly in warm—but not hot—water. Have victim drink warm fluids, but not coffee or alcohol. Do not break blisters. Elevate the injured area, and get medical attention.	Remove victim to a warm place. Have victim drink warm fluids, but not coffee or alcohol. Get medical attention.

### 3.2.10 Compressed Gas Cylinders

- Valve caps must be in place when cylinders are transported, moved, or stored.
- Cylinder valves must be closed when cylinders are not being used and when cylinders are being moved.
- Cylinders must be secured in an upright position at all times.
- Cylinders must be shielded from welding and cutting operations and positioned to avoid being struck or knocked over; contacting electrical circuits; or exposed to extreme heat sources.
- Cylinders must be secured on a cradle, basket, or pallet when hoisted; they may not be hoisted by choker slings.

### 3.2.11 Procedures for Locating Buried Utilities

- Where available, obtain utility diagrams for the facility.
- Review locations of sanitary and storm sewers, electrical conduits, water supply lines, natural gas lines, and fuel tanks and lines.
- Review proposed locations of intrusive work with facility personnel knowledgeable of locations of utilities. Check locations against information from utility mark-out service.
- Where necessary (e.g., uncertainty about utility locations), excavation or drilling of the upper depth interval should be performed manually
- Monitor for signs of utilities during advancement of intrusive work (e.g., sudden change in advancement of auger or split spoon).
- When the client or other onsite party is responsible for determining the presence and locations of buried utilities, the SHSS should confirm that arrangement.



## **3.3 Biological Hazards and Controls**

### **3.3.1 Snakes**

Snakes typically are found in underbrush and tall grassy areas. If you encounter a snake, stay calm and look around; there may be other snakes. Turn around and walk away on the same path you used to approach the area. If a person is bitten by a snake, wash and immobilize the injured area, keeping it lower than the heart if possible. Seek medical attention immediately. **DO NOT** apply ice, cut the wound, or apply a tourniquet. Try to identify the type of snake: note color, size, patterns, and markings.

### **3.3.2 Poison Ivy and Poison Sumac**

Poison ivy, poison oak, and poison sumac typically are found in brush or wooded areas. They are more commonly found in moist areas or along the edges of wooded areas. Become familiar with the identity of these plants. Wear protective clothing that covers exposed skin and clothes. Avoid contact with plants and the outside of protective clothing. If skin contacts a plant, wash the area with soap and water immediately. If the reaction is severe or worsens, seek medical attention.

### **3.3.3 Ticks**

Ticks typically are in wooded areas, bushes, tall grass, and brush. Ticks are black, black and red, or brown and can be up to one-quarter inch in size. Wear tightly woven light-colored clothing with long sleeves and pant legs tucked into boots; spray **only outside** of clothing with permethrin or permethrin and spray skin with only DEET; and check yourself frequently for ticks.

If bitten by a tick, grasp it at the point of attachment and carefully remove it. After removing the tick, wash your hands and disinfect and press the bite areas. Save the removed tick. Report the bite to human resources. Look for symptoms of Lyme disease or Rocky Mountain spotted fever (RMSF). Lyme: a rash might appear that looks like a bullseye with a small welt in the center. RMSF: a rash of red spots under the skin 3 to 10 days after the tick bite. In both cases, chills, fever, headache, fatigue, stiff neck, and bone pain may develop. If symptoms appear, seek medical attention.

### **3.3.4 Bees and Other Stinging Insects**

Bee and other stinging insects may be encountered almost anywhere and may present a serious hazard, particularly to people who are allergic. Watch for and avoid nests. Keep exposed skin to a minimum. Carry a kit if you have had allergic reactions in the past, and inform the SHSS and/or buddy. If a stinger is present, remove it carefully with tweezers. Wash and disinfect the wound, cover it, and apply ice. Watch for allergic reaction; seek medical attention if a reaction develops.

### **3.3.5 Bloodborne Pathogens**

(Reference CH2M HILL- SOP HS-36, *Bloodborne Pathogens*)

Exposure to bloodborne pathogens may occur when rendering first aid or CPR, or when coming into contact with landfill waste or waste streams containing potentially infectious



material. Exposure controls and personal protective equipment (PPE) are required as specified in CH2M HILL SOP HS-36, *Bloodborne Pathogens*. Hepatitis B vaccination must be offered before the person participates in a task where exposure is a possibility.

### **3.3.6 Mosquito Bites**

Due to the recent detection of the West Nile Virus in the Southeastern United States it is recommended that **preventative measures** be taken to reduce the probability of being bitten by mosquitos whenever possible. Mosquitos are believed to be the primary source for exposure to the West Nile Virus as well as several other types of encephalitis. The following guidelines should be followed to reduce the risk of these concerns for working in areas where mosquitos are prevalent.

- Stay indoors at dawn, dusk, and in the early evening.
- Wear long-sleeved shirts and long pants whenever you are outdoors.
- Spray clothing with repellents containing permethrin or DEET since mosquitoes may bite through thin clothing.
- Apply insect repellent sparingly to exposed skin. An effective repellent will contain 35% DEET (N,N-diethyl-meta-toluamide). DEET in high concentrations (greater than 35%) provides no additional protection.
- Repellents may irritate the eyes and mouth, so avoid applying repellent to the hands.
- Whenever you use an insecticide or insect repellent, be sure to read and follow the manufacturer's DIRECTIONS FOR USE, as printed on the product.

Note: Vitamin B and "ultrasonic" devices are NOT effective in preventing mosquito bites.

#### **3.3.6.1 Symptoms of Exposure to the West Nile Virus**

Most infections are mild, and symptoms include fever, headache, and body aches, occasionally with skin rash and swollen lymph glands. More severe infection may be marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and, rarely, death.

The West Nile Virus incubation period is from 3-15 days.

If you have any questions or to report any suspicious symptoms, contact the project Health and Safety Manager.

## **3.4 Radiological Hazards and Controls**

Refer to CH2M HILL's Corporate Health and Safety Program, Program and Training Manual, and Corporate Health and Safety Program, Radiation Protection Program Manual, for standards of practice in contaminated areas.



## 3.5 Contaminants of Concern

Contaminants of concern are listed in Table 3-1.

## 3.6 Potential Routes of Exposure

**Dermal:** Contact with contaminated media. This route of exposure is minimized through proper use of PPE, as specified in Section 4.

**Inhalation:** Vapors and contaminated particulates. This route of exposure is minimized through proper respiratory protection and monitoring, as specified in Sections 4 and 5, respectively.

**Other:** Inadvertent ingestion of contaminated media. This route should not present a concern if good hygiene practices are followed (e.g., wash hands and face before drinking or smoking).



**TABLE 3-1****Contaminants of Concern***(Refer to Project Files for more detailed contaminant information)*

Contaminant	Location and Maximum <sup>a</sup> Concentration (ppm)	Exposure Limit <sup>b</sup>	IDLH <sup>c</sup>	Symptoms and Effects of Exposure	PIP <sup>d</sup> (eV)
Ethyl Benzene	GW: SB:0.43 ppm SS:	100 ppm	800	Eye, skin, and mucous membrane irritation; headache; dermatitis; marcapoc' cp,a	8.76
PNAs (Limits as Coal Tar Pitch)	GW: SB:30 ppm SS:	02 mg/m <sup>3</sup>	80 Ca	Dermatitis and bronchitis	NA
Toluene	GW: SB:1.2 SS:	100 ppm	600 Ca	Eye and nose irritation, fatigue, weakness, confusion, dizziness, headache, dilated pupils, excessive tearing, nervousness, muscle fatigue, paresthesia, dermatitis, liver and kidney damage	8.82
Xylenes	GW: SB: 25 ppm SS:	100 ppm	900 Ca	Irritated; eyes, skin, nose, and throat; dizziness; excitement; drowsiness; incoherence; staggering gate; corneal vacuolization; anorexia; nausea; vomiting; abdominal pain; dermatitis	8.56
<b>Footnotes:</b> <sup>a</sup> Specify sample-designation and media: SB (Soil Boring), A (Air), D (Drums), GW (Groundwater), L (Lagoon), TK (Tank), S (Surface Soil), SL (Sludge), SW (Surface Water). <sup>b</sup> Appropriate value of PEL, REL, or TLV listed. <sup>c</sup> IDLH = Immediately dangerous to life and health (units are the same as specified "Exposure Limit" units for that contaminant); NL = No limit found in reference materials; CA = Potential occupational carcinogen. <sup>d</sup> PIP = photoionization potential; NA = Not applicable; UK = Unknown.					



## 4.0 Project Organization and Personnel

### 4.1 GCI Employee Medical Surveillance and Training

(Reference CH2M HILL- SOPs HS-01, Medical Surveillance, and HS-02, Health and Safety Training)

The employees listed meet state and federal hazardous waste operations requirements for 40-hour initial training, 3-day on-the-job experience, and 8-hour annual refresher training. Employees designated "SHSS" have completed a 12-hour site safety coordinator course, and have documented requisite field experience. An SHSS with a level designation (D, C, B) equal to or greater than the level of protection being used must be present during all tasks performed in exclusion or decontamination zones. Employees designated "FA-CPR" are currently certified by the American Red Cross, or equivalent, in first aid and CPR. At least one FA-CPR designated employee must be present during all tasks performed in exclusion or decontamination zones. At least two FA-CPR trained employees must be available at each job site/operation. The employees listed below are currently active in a medical surveillance program that meets state and federal regulatory requirements for hazardous waste operations. Certain tasks (e.g., confined-space entry) and contaminants (e.g., lead) may require additional training and medical monitoring.

Pregnant employees are to be informed of and are to follow the procedures in CH2M HILL-SOP HS-04, *Reproduction Protection*, including obtaining a physician's statement of the employee's ability to perform hazardous activities before being assigned fieldwork.

Employee Name	Office	Responsibility	SHSS/FA-CPR
Mike Halil	JAX	Project Manager	FA, CPR
Jeff Marks	JAX	Project Manager	FA, CPR
Bruce Johnson	JAX	Health and Safety Manager	SSHS, FA, CPR
Garnet McCurdy	JAX	Project Superintendent	SSHS, FA, CPR
David Kuel	JAX	Project Quality Control	FA, CPR

### 4.2 Field Team Chain of Command and Communication Procedures

#### 4.2.1 Client: Southern Division, U.S. Navy Facilities Engineering Command

Contact Name: ACO – Eva Clement, COTR – Jimmy Jones

Phone: 843/820-5544



## 4.2.2 CCI

Program Manager: Scott Newman/ATL

Project Manager: Mike Halil, Jeff Marks/JAX

Health and Safety Manager: Rich Rathnow/ORO

Site Health and Safety Specialist: Bruce Johnson/JAX

The CCI/CH2M HILL project manager (PM) is responsible for providing adequate resources (budget and staff) for project-specific implementation of the HS&E management process. The PM has overall management responsibility for the tasks listed below. The PM may explicitly delegate specific tasks to other staff, as described in sections that follow, but retains ultimate responsibility for completion of the following in accordance with this SOP:

- Include standard terms and conditions, and contract-specific HS&E roles and responsibilities in contract and subcontract agreements (including flow-down requirements to lower-tier subcontractors)
- Select safe and competent subcontractors by:
  - obtaining, reviewing and accepting or rejecting subcontractor pre-qualification questionnaires
  - ensuring that acceptable certificates of insurance, including CCI as named additional insured, are secured as a condition of subcontract award
  - including HS&E submittals checklist in subcontract agreements, and ensuring that appropriate site-specific safety procedures, training and medical monitoring records are reviewed and accepted prior to the start of subcontractor's field operations
- Maintain copies of subcontracts and subcontractor certificates of insurance (including CCI as named additional insured), bond, contractors license, training and medical monitoring records, and site-specific safety procedures in the project file accessible to site personnel
- Provide oversight of subcontractor HS&E practices per the site-specific safety plan
- Manage the site and interfacing with 3rd parties in a manner consistent with our contract and subcontract agreements and the applicable standard of reasonable care
- Ensure that the overall, job-specific, HS&E goals are fully and continuously implemented

The CCI H&S Manager is responsible for:

- Review and accept or reject subcontractor pre-qualification questionnaires that fall outside the performance range delegated to the Contracts Administrator (KA)
- Review and accept or reject subcontractor training records and site-specific safety procedures prior to start of subcontractor's field operations
- Support the SHSS's oversight of subcontractor (and lower-tier subcontractors) HS&E practices and interfaces with on-site 3rd parties per the site-specific safety plan



The SHSS is responsible for verifying that the project is conducted in a safe manner including the following specific obligations:

- Verify this HSP remains current and amended when project activities or conditions change
- Verify CCI site personnel and subcontractor personnel read this HSP and sign Attachment 1 "Employee Signoff Form" prior to commencing field activities
- Verify CCI site personnel and subcontractor personnel have completed any required specialty training (e.g., fall protection, confined space entry) and medical surveillance as identified in Section 2
- Verify compliance with the requirements of this HSP and applicable subcontractor health and safety plan(s)
- Act as the project "Hazard Communication Coordinator" and perform the responsibilities outlined in Section 2.2.2
- Act as the project "Emergency Response Coordinator" and perform the responsibilities outlined in Section 4
- Post OSHA job-site poster; the poster is required at sites where project field offices, trailers, or equipment-storage boxes are established; posters can be obtained by calling 800/548-4776 or 800/999-9111
- Verify that safety meetings are conducted and documented in the project file initially and as needed throughout the course of the project (e.g., as tasks or hazards change)
- Verify that project H&S forms and permits, found in Attachment 5, are being used as outlined in Section 2
- Perform oversight and/or assessments of subcontractor HS&E practices per the site-specific safety plan and verify that project activity self-assessment checklists, found in Attachment 5, are being used as outlined in Section 2
- Verify that project files available to site personnel include copies of executed subcontracts and subcontractor certificates of insurance (including CCI as named additional insured), bond, contractors license, training and medical monitoring records, and site-specific safety procedures prior to start of subcontractor's field operations
- Manage the site and interfacing with 3rd parties in a manner consistent with our contract/subcontract agreements and the applicable standard of reasonable care
- Coordinate with the HS&E manager regarding CCI and subcontractor operational performance, and 3rd party interfaces
- Ensure that the overall, job-specific, HS&E goals are fully and continuously implemented

The training required for the SHSS is as follows:

- SHSS 10 hour course



- OSHA 10 hour course for Construction
- First Aid and CPR
- Relevant Competent Person Courses (excavation, confined space, scaffold, fall protection, etc.)

The SHSS is responsible for contacting the Field Team Leader and Project Manager. In general, the Project Manager will contact the client. The Health and Safety Manager should be contacted as appropriate.

### **4.2.3 CCI Subcontractors**

(Reference CH2M HILL- SOP HS-55, Subcontractor, Contractor, and Owner)

Certain subcontractors (drilling, remedial and construction contractors) are required to be pre-qualified for safety by completing the Subcontractor Safety Performance Questionnaire. The subcontractors listed above are covered by this HSP. However, this plan does not address hazards associated with the tasks and equipment that the subcontractor has expertise in (e.g., drilling, excavation work, electrical). Subcontractors are responsible for the health and safety procedures specific to their work, and are required to submit these procedures to CCI for review before the start of field work by following the Subcontractor Safety Procedure Criteria specific to their work.

Subcontractors are also required to prepare Activity Hazard Analysis before beginning each activity posing H&S hazards to their personnel using the AHA form provided in Attachment 6 as a guide. The AHA will identify the principle steps of the activity, potential H&S hazards for each step and recommended control measures for each identified hazard. In addition, a listing of the equipment to be used to perform the activity, inspection requirements and training requirements for the safe operation of the equipment listed must be identified.

Subcontractors must comply with the established health and safety plan(s). The CCI SHSS should verify that subcontractor employee training, medical clearance, and fit test records are current and must monitor and enforce compliance with the established plan(s). CCI oversight does not relieve subcontractors of their responsibility for effective implementation and compliance with the established plan(s).

CCI should continuously endeavor to observe subcontractors' safety performance. This endeavor should be reasonable, and include observing for hazards or unsafe practices that are both readily observable and occur in common work areas. CCI is not responsible for exhaustive observation for hazards and unsafe practices. In addition to this level of observation, the SHSS is responsible for confirming CCI subcontractor performance against both the subcontractor's safety plan and applicable self-assessment checklists. Self-assessment checklists contained in Attachment 5 are to be used by the SHSS to review subcontractor performance.

Health and safety related communications with CCI subcontractors should be conducted as follows:



- Brief subcontractors on the provisions of this plan, and require them to sign the Employee Signoff Form included in Attachment 1.
- Request subcontractor(s) to brief project team on the hazards and precautions related to their work.
- When apparent non-compliance/unsafe conditions or practices are observed, notify the subcontractor safety representative and require corrective action – the subcontractor is responsible for determining and implementing necessary controls and corrective actions.
- When repeat non-compliance/unsafe conditions are observed, notify the subcontractor safety representative and stop affected work until adequate corrective measures are implemented.
- When an apparent imminent danger exists, immediately remove all affected CCI employees and subcontractors, notify subcontractor safety representative, and stop affected work until adequate corrective measures are implemented. Notify the Project Manager and HSM as appropriate.
- Document all oral health and safety related communications in project field logbook, daily reports, or other records.



## 5.0 Personal Protective Equipment (PPE)

(Reference CH2M HILL- SOP HS-07, Personal Protective Equipment, HS-08, Respiratory Protection)

Personal protective equipment specifications are listed in Table 5-1.

**TABLE 5-1**  
PPE Specifications <sup>a</sup>

Task	Level	Body	Head	Respirator <sup>b</sup>
General site entry Surveying Oversight of remediation and construction Site Survey Demobilization	D	Work clothes; steel-toe, leather work boots; work glove.	Hardhat <sup>c</sup> Safety glasses Ear protection <sup>d</sup>	None required
Utility Locates	Modified D	Work clothes or cotton coveralls <b>Boots:</b> Steel-toe, chemical-resistant boots OR steel-toe, leather work boots with outer rubber boot covers <b>Gloves:</b> Inner surgical-style nitrile & outer chemical-resistant nitrile gloves.	Hardhat <sup>c</sup> Safety glasses Ear protection <sup>d</sup>	None required
Source Area Investigation Utilizing Direct Push Technology (DPT)/Membrane Interface Probe (MIP) Where contaminated materials present	Modified D	<b>Coveralls:</b> Uncoated Tyvek® <b>Boots:</b> Steel-toe, chemical-resistant boots OR steel-toe, leather work boots with outer rubber boot covers <b>Gloves:</b> Inner surgical-style nitrile & outer chemical-resistant nitrile gloves.	Hardhat <sup>c</sup> Splash shield <sup>c</sup> Safety glasses Ear protection <sup>d</sup>	None required.
Tasks requiring upgrade	C	<b>Coveralls:</b> Polycoated Tyvek® <b>Boots:</b> Steel-toe, chemical-resistant boots OR steel-toe, leather work boots with outer rubber boot covers <b>Gloves:</b> Inner surgical-style nitrile & outer chemical-resistant nitrile gloves.	Hardhat <sup>c</sup> Splash shield <sup>c</sup> Ear protection <sup>d</sup> Spectacle inserts	APR, full face, MSA Ultratwin or equivalent; with GME-H cartridges or equivalent <sup>e</sup> .
Tasks requiring upgrade	B	<b>Coveralls:</b> Polycoated Tyvek® <b>Boots:</b> Steel-toe, chemical-resistant boots OR steel-toe, leather work boots with outer rubber boot covers <b>Gloves:</b> Inner surgical-style nitrile & outer chemical-resistant nitrile gloves.	Hardhat <sup>c</sup> Splash shield <sup>c</sup> Ear protection <sup>d</sup> Spectacle inserts	Positive-pressure demand self-contained breathing apparatus (SCBA); MSA Ultralite, or equivalent.
Reasons for Upgrading or Downgrading Level of Protection				
Upgrade <sup>f</sup>			Downgrade	
<ul style="list-style-type: none"> <li>Request from individual performing tasks.</li> <li>Change in work tasks that will increase contact or potential contact with hazardous materials.</li> </ul>			<ul style="list-style-type: none"> <li>New information indicating that situation is less hazardous than originally thought.</li> </ul>	



**TABLE 5-1**  
**PPE Specifications <sup>a</sup>**

<b>Task</b>	<b>Level</b>	<b>Body</b>	<b>Head</b>	<b>Respirator <sup>b</sup></b>
<ul style="list-style-type: none"> <li>• Occurrence or likely occurrence of gas or vapor emission.</li> <li>• Known or suspected presence of dermal hazards.</li> <li>• Instrument action levels (Section 5) exceeded.</li> </ul>				<ul style="list-style-type: none"> <li>• Change in site conditions that decreases the hazard.</li> <li>• Change in work task that will reduce contact with hazardous materials.</li> </ul>

<sup>a</sup> Modifications are as indicated. CH2M HILL will provide PPE only to CH2M HILL employees.

<sup>b</sup> No facial hair that would interfere with respirator fit is permitted.

<sup>c</sup> Hardhat and splash-shield areas are to be determined by the SHSS.

<sup>d</sup> Ear protection should be worn when conversations cannot be held at distances of 3 feet or less without shouting.

<sup>e</sup> Cartridge change-out schedule is at least every 8 hours (or one work day), except if relative humidity is > 85%, or if organic vapor measurements are > midpoint of Level C range (refer to Section 5)—then at least every 4 hours. If encountered conditions are different than those anticipated in this HSP, contact the HSM.

<sup>f</sup> Performing a task that requires an upgrade to a higher level of protection (e.g., Level D to Level C) is permitted only when the PPE requirements have been approved by the HSM, and an SHSS qualified at that level is present.



## 6.0 Air Monitoring/Sampling

(Reference CH2M HILL- SOP HS-06, *Air Monitoring*)

### 6.1 Air Monitoring Specifications

Air monitoring specifications are listed in Table 6-1.

**TABLE 6-1**  
Air Monitoring Specifications

Instrument	Tasks	Action Levels <sup>a</sup>	Frequency <sup>b</sup>	Calibration
FID: OVA model 128 or equivalent	Intrusive operations	Up to 1 ppm	Initially and periodically during task	Daily
		1-5 ppm		
		5-10 ppm		
		>10 ppm		
PID: OVM with 10.6eV lamp or equivalent	Intrusive operations	Up to 1 ppm	Initially and periodically during task	Daily
		1-5 ppm		
		5-10 ppm		
		>10 ppm		
CGI: MSA model 260 or 261 or equivalent		0-10% :	Continuous during advancement of boring or trench	Daily
		10-25% LEL:		
		>25% LEL:		
O <sub>2</sub> Meter: MSA model 260 or 261 or equivalent		>25% <sup>c</sup> O <sub>2</sub> :	Continuous during advancement of boring or trench	Daily
		20.9% <sup>c</sup> O <sub>2</sub> :		
		<19.5% <sup>c</sup> O <sub>2</sub> :		
Colormetric Tube: Drager vinyl chloride specific (0.5 to 30 ppm range) with pre-tube, or equivalent	Intrusive operations	<0.5 ppm	Initially and periodically when PID/FID >1 ppm	Not applicable
		0.5 ppm		



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<sup>a</sup> Action levels apply to sustained breathing-zone measurements above background.

<sup>b</sup> The exact frequency of monitoring depends on field conditions and is to be determined by the SHSS; generally, every 5 to 15 minutes if acceptable; more frequently may be appropriate. Monitoring results should be recorded. Documentation should include instrument and calibration information, time, measurement results, personnel monitored, and place/location where measurement is taken (e.g., "Breathing Zone/MW-3", "at surface/SB-2", etc.).

<sup>c</sup> If the measured percent of O<sub>2</sub> is less than 10, an accurate LEL reading will not be obtained. Percent LEL and percent O<sub>2</sub> action levels apply only to ambient working atmospheres, and not to confined-space entry. More-stringent percent LEL and O<sub>2</sub> action levels are required for confined-space entry (refer to Section 2).

<sup>d</sup> Refer to SOP HS-10 for instructions and documentation on radiation monitoring and screening.

<sup>e</sup> Noise monitoring and audiometric testing also required.



## 6.2 Calibration Specifications

(Refer to the respective manufacturer's instructions for proper instrument-maintenance procedures)

Air monitoring equipment calibration specifications are listed in Table 6-2.

**TABLE 6-2**  
Air Monitoring Equipment Calibration Specifications

Instrument	Gas	Span	Reading	Method
<b>PID:</b> OVM, 10.6 or 11.8 eV bulb	100 ppm isobutylene	RF = 1.0	100 ppm	1.5 lpm reg T-tubing
<b>PID:</b> MiniRAE, 10.6 eV bulb	100 ppm isobutylene	CF = 100	100 ppm	1.5 lpm reg T-tubing
<b>PID:</b> TVA 1000	100 ppm isobutylene	CF = 1.0	100 ppm	1.5 lpm reg T-tubing
<b>FID:</b> OVA	100 ppm methane	3.0 ± 1.5	100 ppm	1.5 lpm reg T-tubing
<b>FID:</b> TVA 1000	100 ppm methane	NA	100 ppm	2.5 lpm reg T-tubing
<b>Dust Monitor:</b> Miniram-PDM3	Dust-free air	Not applicable	0.00 mg/m <sup>3</sup> in "Measure" mode	Dust-free area OR Z-bag with HEPA filter
<b>CGI:</b> MSA 260, 261, 360, or 361	0.75% pentane	N/A	50% LEL ± 5% LEL	1.5 lpm reg direct tubing

## 6.3 Air Sampling

Sampling, in addition to real-time monitoring, may be required by other OSHA regulations where there may be exposure to certain contaminants. Air sampling typically is required when site contaminants include lead, cadmium, arsenic, asbestos, and certain volatile organic compounds. Contact the HSM immediately if these contaminants are encountered.

Results must be sent immediately to the HSM. Regulations may require reporting to monitored personnel. Results reported to the HSM.



## 7.0 Decontamination

(Reference CH2M HILL- SOP HS-13, *Decontamination*)

The SHSS must establish and monitor the decontamination procedures and their effectiveness. Decontamination procedures found to be ineffective will be modified by the SHSS. The SHSS must ensure that procedures are established for disposing of materials generated on the site.

### 7.1 Decontamination Specifications

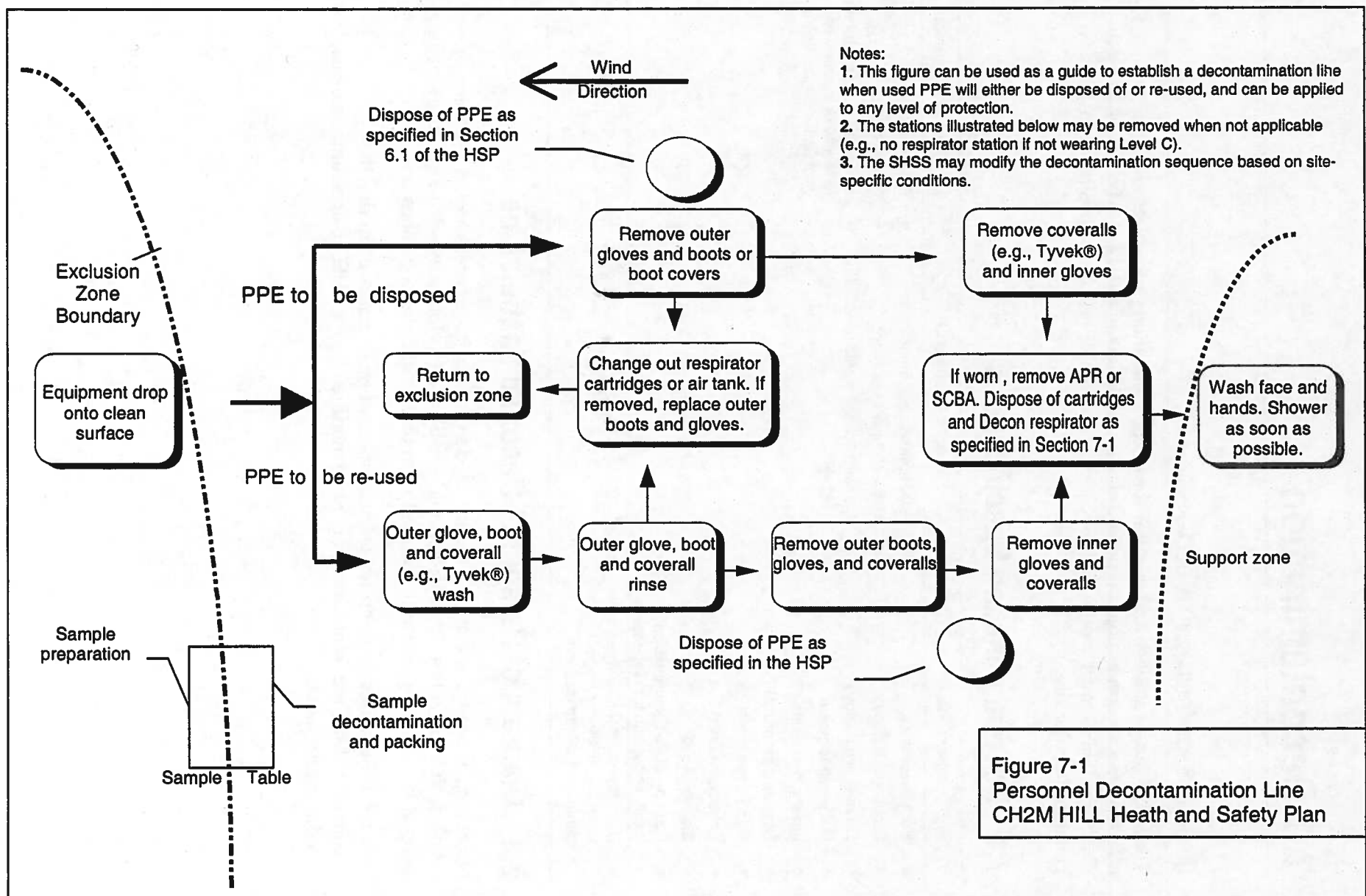
Personnel	Sample Equipment	Heavy Equipment
<ul style="list-style-type: none"><li>• Boot wash/rinse</li><li>• Glove wash/rinse</li><li>• Outer-glove removal</li><li>• Body-suit removal</li><li>• Inner-glove removal</li><li>• Respirator removal</li><li>• Hand wash/rinse</li><li>• Face wash/rinse</li><li>• Shower ASAP</li><li>• Dispose of PPE in municipal trash, or contain for disposal</li><li>• Dispose of personnel rinse water to facility or sanitary sewer, or contain for offsite disposal</li></ul>	<ul style="list-style-type: none"><li>• Wash/rinse equipment</li><li>• Solvent-rinse equipment</li><li>• Contain solvent waste for offsite disposal</li></ul>	<ul style="list-style-type: none"><li>• Power wash</li><li>• Steam clean</li><li>• Dispose of equipment rinse water to facility or sanitary sewer, or contain for offsite disposal</li></ul>

### 7.2 Diagram of Personnel-Decontamination Line

No eating, drinking, or smoking is permitted in contaminated areas and in exclusion or decontamination zones. The SHSS should establish areas for eating, drinking, and smoking. Contact lenses are not permitted in exclusion or decontamination zones.

Figure 7-1 illustrates a conceptual establishment of work zones, including the decontamination line. Work zones are to be modified by the SHSS to accommodate task-specific requirements.







## **8.0 Spill-Containment Procedures**

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Sorbent material will be maintained in the support zone. Incidental spills will be contained with sorbent and disposed of properly.



## 9.0 Site-Control Plan

---

### 9.1 Site-Control Procedures

(Reference CH2M HILL- SOP HS-11, *Site Control*)

- The SHSS will conduct a site safety briefing (see below) before starting field activities or as tasks and site conditions change.
- Topics for briefing on site safety: general discussion of Health and Safety Plan, site-specific hazards, locations of work zones, PPE requirements, equipment, special procedures, emergencies.
- The SHSS records attendance at safety briefings in a logbook and documents the topics discussed.
- Post the OSHA job-site poster in a central and conspicuous location in accordance with CH2M HILL- SOP HS-71, OSHA Postings.
- Establish support, decontamination, and exclusion zones. Delineate with flags or cones as appropriate. Support zone should be upwind of the site. Use access control at entry and exit from each work zone.
- Establish onsite communication consisting of the following:
  - Line-of-sight and hand signals
  - Air horn
  - Two-way radio or cellular telephone if available
- Establish offsite communication.
- Establish and maintain the "buddy system."
- Initial air monitoring is conducted by the SHSS in appropriate level of protection.
- The SHSS is to conduct periodic inspections of work practices to determine the effectiveness of this plan – refer to Sections 2 and 3. Deficiencies are to be noted, reported to the HSM, and corrected.

### 9.2 Hazwoper Compliance Plan

(Reference CH2M HILL- SOP HS-19, *Site-Specific Written Safety Plans*)

Certain parts of the site work are covered by state or federal Hazwoper standards and therefore require training and medical monitoring. Anticipated Hazwoper tasks might occur consecutively or concurrently with respect to non-Hazwoper tasks. This section outlines procedures to be followed when approved activities do not require 24- or 40-hour



training. Non-Hazwoper-trained personnel also must be trained in accordance with all other state and federal OSHA requirements.

- In many cases, air sampling, in addition to real-time monitoring, must confirm that there is no exposure to gases or vapors before non-Hazwoper-trained personnel are allowed on the site, or while non-Hazwoper-trained staff are working in proximity to Hazwoper activities. Other data (e.g., soil) also must document that there is no potential for exposure. The HSM must approve the interpretation of these data. Refer to subsections 2.5 and 5.3 for contaminant data and air sampling requirements, respectively.
- When non-Hazwoper-trained personnel are at risk of exposure, the SHSS must post the exclusion zone and inform non-Hazwoper-trained personnel of the:
  - nature of the existing contamination and its locations
  - limitations of their access
  - emergency action plan for the site
- Periodic air monitoring with direct-reading instruments conducted during regulated tasks also should be used to ensure that non-Hazwoper-trained personnel (e.g., in an adjacent area) are not exposed to airborne contaminants.
- When exposure is possible, non-Hazwoper-trained personnel must be removed from the site until it can be demonstrated that there is no longer a potential for exposure to health and safety hazards.
- Remediation treatment system start-ups: Once a treatment system begins to pump and treat contaminated media, the site is, for the purposes of applying the Hazwoper standard, considered a treatment, storage, and disposal facility (TSDF). Therefore, once the system begins operation, only Hazwoper-trained personnel (minimum of 24 hour of training) will be permitted to enter the site. All non-Hazwoper-trained personnel must not enter the TSDF area of the site.



## 10.0 Emergency Response Plan

---

(Reference CH2M HILL- SOP HS-12, *Emergency Response*)

### 10.1 Pre-Emergency Planning

The SHSS performs the applicable pre-emergency planning tasks before starting field activities and coordinates emergency response with CCI onsite parties, the facility, and local emergency-service providers as appropriate.

- Review the facility emergency and contingency plans where applicable.
- Determine what onsite communication equipment is available (e.g., two-way radio, air horn).
- Determine what offsite communication equipment is needed (e.g., nearest telephone, cell phone).
- Confirm and post emergency telephone numbers, evacuation routes, assembly areas, and route to hospital; communicate the information to onsite personnel.
- Field Trailers: Post "Exit" signs above exit doors, and post "Fire Extinguisher" signs above locations of extinguishers. Keep areas near exits and extinguishers clear.
- Review changed site conditions, onsite operations, and personnel availability in relation to emergency response procedures.
- Where appropriate and acceptable to the client, inform emergency room and ambulance and emergency response teams of anticipated types of site emergencies.
- Designate one vehicle as the emergency vehicle; place hospital directions and map inside; keep keys in ignition during field activities.
- Inventory and check site emergency equipment, supplies, and potable water.
- Communicate emergency procedures for personnel injury, exposures, fires, explosions, and releases.
- Rehearse the emergency response plan before site activities begin, including driving route to hospital.
- Brief new workers on the emergency response plan.

The SHSS will evaluate emergency response actions and initiate appropriate follow-up actions.



## 10.2 Emergency Equipment and Supplies

The SHSS should mark the locations of emergency equipment on the site map and post the map.

Emergency Equipment and Supplies	Location
20 LB (or two 10-lb) fire extinguisher (A, B, and C classes)	Support Zone/Heavy Equipment
First aid kit	Support Zone/Field Vehicle
Eye Wash	Support & Decon Zone/Field Vehicle
Potable water	Support & Decon Zone/Field Vehicle
Bloodborne-pathogen kit	Support Zone/Field Vehicle
Additional equipment (specify):	

## 10.3 Incident Reporting, Investigation and Response

For any accident meeting the definition of Recordable Occupational Injuries or Illnesses or Significant Accidents, the Southern Division, NAVFAC Contracting Officer and Navy Technical Representative (NTR) will be notified by the HSM or Program Manager soon as practical, but not later than four hours after occurrence. All other incidents must be reported to Southern Division, NAVFAC within 24 hours of incident occurrence.

Therefore in order for the incident to be assessed for reportability purposes it is imperative that according to CCI requirements, all personal injuries, near-misses, or property damage incidents involving CCI or subcontractor project personnel be reported IMMEDIATELY to the HSM Rich Rathnow/ORO, Program Manager Scott Newman/ATL, or CCI Corporate HSM Angelo Liberatore/ATL at the numbers identified in the emergency contact attachment contained in this plan.

The Site Manager or designee must report the following incident information to the HSM immediately after incident occurrence:

- Date and time of mishap
- Project name and project number
- Name and worker classification
- Extent of known injuries
- Level of medical attention
- Injury cause

A written incident investigation will be performed and submitted to the HSM within 24 hours of incident occurrence by the completing the Incident Report, Near Loss Investigation and Root Cause Analysis provided in the HSP Attachments.

In fires, explosions, or chemical releases, actions to be taken include the following:

- Shut down CCI operations and evacuate the immediate work area.
- Notify appropriate response personnel.
- Account for personnel at the designated assembly area(s).
- Assess the need for site evacuation, and evacuate the site as warranted.



Instead of implementing a work-area evacuation, note that small fires or spills posing minimal safety or health hazards may be controlled.

## **10.4 Emergency Medical Treatment**

The procedures listed below may also be applied to non-emergency incidents. CCI employee injuries and illnesses must be reported to the Human Resource contact in Attachment 4. If there is doubt about whether medical treatment is necessary, or if the injured person is reluctant to accept medical treatment, contact the CCI medical consultant, depending on whose employee is injured. During non-emergencies, follow these procedures as appropriate.

- Notify appropriate emergency response authorities (e.g., 911).
- The SHSS will assume charge during a medical emergency until the ambulance arrives or until the injured person is admitted to the emergency room.
- Prevent further injury.
- Initiate first aid and CPR where feasible.
- Get medical attention immediately.
- Perform decontamination where feasible; lifesaving and first aid or medical treatment take priority.
- Make certain that the injured person is accompanied to the emergency room.
- When contacting the medical consultant, give your name and telephone number, the name of the injured person, the extent of the injury or exposure, and the name and location of the medical facility where the injured person was taken.
- Report incident as outlined in Section 10.7.

## **10.5 Evacuation**

- Evacuation routes and assembly areas (and alternative routes and assembly areas) are specified on the site map.
- Evacuation route(s) and assembly area(s) will be designated by the SHSS before work begins.
- Personnel will assemble at the assembly area(s) upon hearing the emergency signal for evacuation.
- The SHSS and a "buddy" will remain on the site after the site has been evacuated (if safe) to assist local responders and advise them of the nature and location of the incident.
- The SHSS will account for all personnel in the onsite assembly area.
- A designated person will account for personnel at alternate assembly area(s).



- The SHSS will write up the incident as soon as possible after it occurs and submit a report to the Corporate Director of Health and Safety.

## 10.6 Evacuation Signals

Signal	Meaning
Grasping throat with hand	Emergency-help me.
Thumbs up	OK; understood.
Grasping buddy's wrist	Leave area now.
Continuous sounding of horn	Emergency; leave site now.

## 10.7 Incident Notification and Reporting

- Upon any project incident (fire, spill, injury, near miss, death, etc.), immediately notify the PM and HSM. Call emergency beeper number if HSM is unavailable.
- For CCI work-related injuries or illnesses, contact the respective Human Resources contact listed in Attachment 4. For CCI incidents the HR administrator completes an Incident Report Form (IRF). IRF must be completed within 24 hours of incident.
- For CCI subcontractor incidents, complete the Subcontractor Accident/Illness Report Form (Attachment ) and submit to the HSM.
- Notify and submit reports to client as required in contract.



## 11.0 Behavior Based Loss Prevention System

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A Behavior Based Loss Prevention System (BBLPS) is a system to prevent or reduce losses using behavior-based tools and proven management techniques to focus on behaviors or acts that could lead to losses.

The four basic Loss Prevention tools that will be used on CCI projects to implement the BBLPS include:

- Activity Hazard Analysis (AHA)
- Pre-Task Safety Plans (PTSP)
- Loss Prevention Observations (LPO)
- Loss and Near Loss Investigations (NLI)

The Site Supervisor serves as the Site Health and Safety Specialist (SHSS) and is responsible for implementing the BBLPS on the project site. When a separate individual is assigned as the SHSS, the SHSS is delegated authority from the Site Supervisor to implement the BBLPS on the project site, but the Site Supervisor remains accountable for its implementation. The Site Supervisor/Safety Coordinator will only oversee the subcontractor's implementation of their AHAs and PTSPs processes on the project.

### 11.1 Activity Hazard Analysis

An Activity Hazard Analysis (AHA) defines the activity being performed, the hazards posed and control measures required to perform the work safely. Workers are briefed on the AHA before doing the work and their input is solicited prior, during and after the performance of work to further identify the hazards posed and control measures required.

Activity Hazard Analysis will be prepared before beginning each project activity posing H&S hazards to project personnel using the AHA form provided in Attachment 6. The AHA will identify the work tasks required to perform each activity, along with potential H&S hazards and recommended control measures for each work task. In addition, a listing of the equipment to be used to perform the activity, inspection requirements and training requirements for the safe operation of the equipment listed must be identified.

An AHA will be prepared for all field activities performed by CCI and subcontractor during the course of the project by the Site Supervisor/SHSS. The Project-Specific and General Hazards of the HSP, the Hazard Analysis Table (Table 2-1), and applicable CH2M HILL Standards of Practice (SOPs) should be used as a basis for preparing CCI's AHAs.



CCI subcontractors are required to provide AHAs specific to their scope of work on the project for acceptance by CCI. Each subcontractor will submit AHAs for their field activities, as defined in their work plan/scope of work, along with their project-specific HSP. Additions or changes in CCI or subcontractor field activities, equipment, tools or material to perform work or additional/different hazard encountered that require additional/different hazard control measures requires either a new AHA to be prepared or an existing AHA to be revised.

## **11.2 Pre-Task Safety Plans**

Daily safety meetings are held with all project personnel in attendance to review the hazards posed and required H&S procedures/AHAs, that apply for each day's project activities. The PTSPs serve the same purpose as these general assembly safety meetings, but the PTSPs are held between the crew supervisor and their work crews to focus on those hazards posed to individual work crews. At the start of each day's activities, the crew supervisor completes the PTSP, provided in Attachment 6, with input from the work crew, during their daily safety meeting. The day's tasks, personnel, tools and equipment that will be used to perform these tasks are listed, along with the hazards posed and required H&S procedures, as identified in the AHA. The use of PTSPs, better promotes worker participation in the hazard recognition and control process, while reinforcing the task-specific hazard and required H&S procedures with the crew each day. The use of PTSPs is a common safety practice in the construction industry.

## **11.3 Loss Prevention Observations**

Loss Prevention Observations (LPOs) will be conducted by Site Supervisor/SHSS for specific work tasks or operations comparing the actual work process against established safe work procedures identified in the project-specific HSP and AHAs. LPOs are a tool to be used by supervisors to provide positive reinforcement for work practices performed correctly, while also identifying and eliminating deviations from safe work procedures that could result in a loss. Site Supervisor/SHSS will perform at least one LPO each week for a tasks/operations addressed in the project-specific HSP or AHA. The Site Supervisor/SHSS will complete the LPO form in Attachment 6 for the task/operation being observed.

## **11.4 Loss/Near Loss Investigations**

Loss/Near Loss Investigations will be performed for the all CCI and subcontractor incidents involving:

- Person injuries/illnesses and near miss injuries
- Equipment/property damage
- Spills, leaks, regulatory violations
- Motor vehicle accidents

The cause of loss and near loss incidents are similar, so by identifying and correcting the causes of near loss causes, future loss incidents may be prevented. The following is the Loss/Near Loss Investigation Process:



- Gather all relevant facts, focusing on fact-finding, not fault-finding, while answering the who, what, when, where and how questions.
- Draw conclusions, pitting facts together into a probable scenario.
- Determine incident root cause(s), which are basic causes on why an unsafe act/condition existed.
- Develop and implement solutions, matching all identified root causes with solutions.
- Communicate incident as a Lesson Learned to all project personnel.
- Filed follow-up on implemented corrective active action to confirm solution is appropriate.

Site Supervisors/SHSS will perform an incident investigation, as soon as practical after incident occurrence during the day of the incident, for all Loss and Near Loss Incidents that occur on the project. Loss and Near Loss incident investigations will be performed using the following incident investigation forms provided in Attachment 6:

- Incident Report Form (IRF)
- Incident Investigation Form
- Root Cause Analysis Form

All Loss and Near Loss incident involving personal injury, property damage in excess of \$1,000 or near loss incidents that could have resulted in serious consequences will be investigated by completing the incident investigation forms and submitting them to the PM and HSM within 24 hours of incident occurrence. A preliminary Incident Investigation and Root Cause Analysis will be submitted to the Project Manager and HSM within 24 hours of incident occurs. The final Incident Investigation and Root Cause Analysis will be submitted after completing a comprehensive investigation of the incident.



## 12.0 Approval

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This site-specific Health and Safety Plan has been written for use by CCI only. CCI claims no responsibility for its use by others unless that use has been specified and defined in project or contract documents. The plan is written for the specific site conditions, purposes, dates, and personnel specified and must be amended if those conditions change.

### 12.1 Original Plan

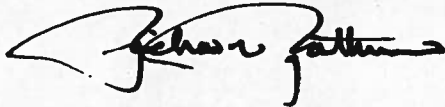
Written By: Rich Rathnow

Date: 1-23-04

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Approved By: Rich Rathnow

Date: 1-23-04



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### 12.2 Revisions

Revisions Made By:

Date:

---

Revisions to Plan:

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Revisions Approved By:

Date:

---



**Attachment 1**

**Employee Signoff Form**



# EMPLOYEE SIGNOFF FORM

## Health and Safety Plan

- The CH2M HILL project employees and subcontractors listed below have been provided with a copy of this HSP, have read and understood it, and agree to abide by its provisions.

**Project Name:** Site 1330, Building 46 NS Mayport, FL

**Project Number: CTO -012**

[illegible]



## **Attachment 2**

### **Project-Specific Chemical Product Hazard Communication Form**



This form must be completed prior to performing activities that expose personnel to hazardous chemicals products. Upon completion of this form, the SHSS will verify that training is provided on the hazards associated with these chemicals and the control measures to be used to prevent exposure to CH2M HILL and subcontractor personnel. Labeling and MSDS systems will also be explained.

**Project Number:** CTO - 012

**MSDSs will be maintained at the following location(s):**

[illegible]

Refer to SOP HS-05 *Hazard Communication* for more detailed information.



## **Attachment 3**

### **Chemical-Specific Training Form**



# Chemical-Specific Training Form

Location:

Project # :

HCC:

Trainer:

## TRAINING PARTICIPANTS:

NAME	SIGNATURE	NAME	SIGNATURE

## REGULATED PRODUCTS/TASKS COVERED BY THIS TRAINING:


The HCC will use the product MSDS to provide the following information concerning each of the products listed above.

- ☐ Physical and health hazards
- ☐ Control measures that can be used to provide protection (including appropriate work practices, emergency procedures, and personal protective equipment to be used)
- ☐ Methods and observations used to detect the presence or release of the regulated product in the workplace (including periodic monitoring, continuous monitoring devices, visual appearance or odor of regulated product when being released, etc.)

Training participants will have the opportunity to ask questions concerning these products and, upon completion of this training, will understand the product hazards and appropriate control measures available for their protection.

Copies of MSDSs, chemical inventories, and CH2M HILL's written hazard communication program will be made available for employee review in the facility/project hazard communication file.



## **Attachment 4**

### **Emergency Contacts**



## Emergency Contacts

### 24-hour CH2M HILL Emergency Beeper – 888/444-1226

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**Medical Emergency – 911**

Facility Medical Response #:

Local Ambulance #:

**CH2M HILL- Medical Consultant**

Dr. Jerry H. Berke, M.D., M.P.H.

Health Resources

600 West Cummings Park, Suite 3400

Woburn, MA 01801-6350

781/938-4653

800/350-4511

(After hours calls will be returned within 20 minutes)

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**Fire/Spill Emergency – 911**

Facility Fire Response #:

Local Fire Dept #:

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**Local Occupational Physician**

Baptist Medical Center – Beaches

904/247-2900

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**Security & Police – 911**

Facility Security #:

Local Police #:

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**Navy RAC Program Manager**

Name: Scott Newman/ATL

Phone: 770/604/9182

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**Utilities Emergency**

Water:

Gas:

Electric:

---

**Navy RAC Health and Safety Manager (HSM)**

Name: Rich Rathnow/ORO

Phone: 865/483-9005 (Office); 865/607-6734

(Cell)

865/531-2933 (Home)

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**Site Health and Safety Specialist (SHSS)**

Name: Bruce Johnson

Phone: Cell 904-237-4551

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**CCI Human Resources Department**

Name: Nancy Orr/COR

Phone: 303/771-0952

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**CTO Project Manager**

Name: Mike Halil

Phone: 904/777-4812

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**Corporate Human Resources Department**

Name: John Monark/COR

Phone: 303/771-0900

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**Federal Express Dangerous Goods Shipping**

Phone: 800/238-5355

**Emergency Number for Shipping Dangerous Goods**

Phone: 800/255-3924

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**CH2M HILL Worker's Compensation and Auto Claims**

Sterling Administration Services

Phone: 800/420-8926 After hours: 800/497-4566

Report fatalities AND report vehicular accidents involving pedestrians, motorcycles, or more than two cars.

Contact the Project Manager. Generally, the Project Manager will contact relevant government agencies.

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**Facility Alarms:**

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**Evacuation Assembly Area(s):**

---

**Facility/Site Evacuation Route(s):**

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**Hospital Name/Address:**

Baptist Medical Center - Beaches

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**Hospital Phone #: Hospital**

Phone #: 904/247-2900



## Directions to Hospital

**Hospital Name/Address:**

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### Route to Hospital:

- Leave Base and proceed SOUTH on Mayport Road 3.7 miles
- Mayport Road becomes SR A1A 0.5 Miles
- Turn LEFT at intersection of Atlantic Blvd (stay with SR-A1A) 0.1 miles
- Exit SR-10/Atlantic Blvd Ramp 0.1 miles
- Merge onto Atlantic Blvd and proceed 1.1 miles
- Turn RIGHT on North 3<sup>rd</sup> Street and proceed 3.4 miles
- Turn RIGHT on South 13<sup>th</sup> Ave and proceed 0.6 miles
- Baptist Medical Center is on LEFT

Total Distance 9.5 miles

Travel time: ~25 minutes

---



## **Attachment 5**

### **Project Activity Self-Assessment Checklists/Permits**

- **Drilling**
- **Hand and Power Tools**



## H&S Self-Assessment Checklist - DRILLING

This checklist will be used by CH2M HILL personnel **only** and will be completed at the frequency specified in the project's HSP/FSI.

This checklist is to be used at locations where: 1) CH2M HILL employees are potentially exposed to hazards associated with drilling operations (complete Sections 1 and 3), and/or 2) CH2M HILL oversight of a drilling subcontractor is required (complete entire checklist).

SSC/DSC may consult with drilling subcontractors when completing this checklist, but will not direct the means and methods of drilling operations nor direct the details of corrective actions. Drilling subcontractors will determine how to correct deficiencies and we must carefully rely on their expertise. Items considered to be imminently dangerous (possibility of serious injury or death) will be corrected immediately or all exposed personnel will be removed from the hazard until corrected.

**Completed checklists will be sent to the health and safety manager for review.**

Project Name: \_\_\_\_\_ Project No.: \_\_\_\_\_

Location: \_\_\_\_\_ PM: \_\_\_\_\_

Auditor: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

This specific checklist has been completed to:

☐ Evaluate CH2M HILL employee exposures to drilling hazards

☐ Evaluate a CH2M HILL subcontractor's compliance with drilling H&S requirements

Subcontractors Name: \_\_\_\_\_

Check "Yes" if an assessment item is complete/correct.

Check "No" if an item is incomplete/deficient. Deficiencies will be brought to the immediate attention of the drilling subcontractor. Section 3 must be completed for all items checked "No."

Check "N/A" if an item is not applicable.

Check "N/O" if an item is applicable but was not observed during the assessment.

Numbers in parentheses indicate where a description of this assessment item can be found in Standard of Practice HS-35.

**Yes    No    N/A    N/O**

### PERSONNEL SAFE WORK PRACTICES (3.1)

- |  |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. Only authorized personnel operating drill rig   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Personnel cleared during rig startup  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Personnel clear of rotating parts   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Personnel not positioned under hoisted loads  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Loose clothing and jewelry removed  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Personnel instructed not to approach equipment that has become electrically energized | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Smoking is prohibited around drilling operation                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Personnel wearing appropriate PPE, per HSP/FSI  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



### SECTION 2

Yes   No   N/A   N/O

#### GENERAL (3.2.1)

- 9. Daily safety briefing/meeting conducted with crew
- 10. Daily inspection of drill rig and equipment conducted before use

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### DRILL RIG PLACEMENT (3.2.2)

- 11. Location of underground utilities identified
- 12. Safe clearance distance maintained from overhead powerlines
- 13. Drilling pad established, when necessary
- 14. Drill rig leveled and stabilized

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### DRILL RIG TRAVEL (3.2.3)

- 15. Rig shut down and mast lowered and secured prior to rig movement
- 16. Tools and equipment secured prior to rig movement
- 17. Only personnel seated in cab are riding on rig during movement
- 18. Safe clearance distance maintained while traveling under overhead powerlines
- 19. Backup alarm or spotter used when backing rig

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### DRILL RIG OPERATION (3.2.4)

- 20. Kill switch clearly identified and operational
- 21. All machine guards are in place
- 22. Rig ropes not wrapped around body parts
- 23. Pressurized lines and hoses secured from whipping hazards
- 24. Drill operation stopped during inclement weather
- 25. Air monitoring conducted per HSP/FSI for hazardous atmospheres
- 26. Rig placed in neutral when operator not at controls

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### DRILL RIG MAINTENANCE (3.2.5)

- 27. Defective components repaired immediately
- 28. Lockout/tagout procedures used prior to maintenance
- 29. Cathead in clean, sound condition
- 30. Drill rig ropes in clean, sound condition
- 31. Fall protection used for fall exposures of 6 feet or greater
- 32. Rig in neutral and augers stopped rotating before cleaning
- 33. Good housekeeping maintained on and around rig

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### DRILLING AT HAZARDOUS WASTE SITES (3.2.6)

- 34. Waste disposed of according to HSP
- 35. Appropriate decontamination procedures being followed, per HSP

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Item #

### **Corrective Action Planned/Taken**

**Date**  
**Corrected**

Auditor: \_\_\_\_\_ Project Manager: \_\_\_\_\_



This checklist will be used by CH2M HILL personnel **only** and will be completed at the frequency specified in the project's HSP/FSI.

This checklist is to be used at locations where: 1) CH2M HILL employees are exposed to hand and power tool hazards and/or 2) CH2M HILL provides oversight of subcontractor personnel who are exposed to hand and power tool hazards.

SSC or DSC may consult with subcontractors when completing this checklist, but will not direct the means and methods of hand and power tool use nor direct the details of corrective actions. Subcontractors will determine how to correct deficiencies and we must carefully rely on their expertise. Items considered to be imminently dangerous (possibility of serious injury or death) will be corrected immediately or all exposed personnel will be removed from the hazard until corrected.

Completed checklists will be sent to the HS&E Staff for review.

Project Name: \_\_\_\_\_ Project No.: \_\_\_\_\_  
Location: \_\_\_\_\_ PM: \_\_\_\_\_  
Auditor: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

This specific checklist has been completed to:

- ☐ Evaluate CH2M HILL employee exposure to hand and power tool hazards.  
☐ Evaluate a CH2M HILL subcontractor's compliance with hand and power tool requirements.  
Subcontractors Name: \_\_\_\_\_

Check "Yes" if an assessment item is complete/correct.

Check "No" if an item is incomplete/deficient. Deficiencies will be brought to the immediate attention of the subcontractor.  
Section 3 must be completed for all items checked "No."

Check "N/A" if an item is not applicable.

Check "N/O" if an item is applicable but was not observed during the assessment.

Numbers in parentheses indicate where a description of this assessment item can be found in Standard of Practice HS-50.

### SECTION 1

Yes No N/A N/O

#### **SAFE WORK PRACTICES (3.1)**

- |   |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. All tools operated according to manufacturer's instructions and design limitations.                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. All hand and power tools maintained in a safe condition and inspected and tested before use.       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Defective tools are tagged and removed from service until repaired.                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. PPE is selected and used according to tool-specific hazards anticipated.                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Power tools are not carried or lowered by their cord or hose.                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Tools are disconnected from energy sources when not in use, servicing, cleaning, etc.              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Safety guards remain installed or are promptly replaced after repair.                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Tools are stored properly.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cordless tools and recharging units both conform to electrical standards and specifications.          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Tools used in explosive environments are rated for such use.                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Knife or blade hand tools are used with the proper precautions.                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Consider controls to avoid muscular skeletal, repetitive motion, and cumulative trauma stressors. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



**SECTION 2****Yes No N/A N/O****GENERAL (3.2.1)**

- |  |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 13. PPE is selected and used according to tool-specific hazards anticipated.           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Tools are tested daily to assure safety devices are operating properly.            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Damaged tools are removed from service until repaired.                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. Power operated tools designed to accommodate guards have guards installed.         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. Rotating or moving parts on tools are properly guarded.                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Machines designed for fixed locations are secured or anchored.                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. Floor and bench-mounted grinders are provided with properly positioned work rests. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. Guards are provided at point of operation, nip points, rotating parts, etc.        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. Fluid used in hydraulic-powered tools is approved fire-resistant fluid.            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**ELECTRIC-POWERED TOOLS (3.2.2)**

- |   |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 22. Electric tools are approved double insulated or grounded and used according to SOP HS-23.         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. Electric cords are not used for hoisting or lowering tools.                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. Electric tools are used in damp/ wet locations are approved for such locations or GFCI installed. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. Hand-held tools are equipped with appropriate on/off controls appropriate for the tool.           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26. Portable, power-driven circular saws are equipped with proper guards.                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**ABRASIVE WHEEL TOOLS (3.2.3)**

- |  |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 27. All employees using abrasive wheel tools are wearing eye protection.                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. All grinding machines are supplied with sufficient power to maintain spindle speed.    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 29. Abrasive wheels are closely inspected and ring-tested before use.                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 30. Grinding wheels are properly installed.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 31. Cup-type wheels for external grinding are protected by the proper guard or flanges.    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 32. Portable abrasive wheels used for internal grinding are protected by safety flanges.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 33. Safety flanges are used only with wheels designed to fit the flanges.                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 34. Safety guards on abrasive wheel tools are mounted properly and of sufficient strength. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**PNEUMATIC-POWERED TOOLS (3.2.4)**

- |  |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 35. Tools are secured to hoses or whip by positive means to prevent disconnection.                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 36. Safety clips or retainers are installed to prevent attachments being expelled.                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 37. Safety devices are installed on automatic fastener feed tools as required.                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 38. Compressed air is not used for cleaning unless reduced to < 30 psi, with PPE, and guarded.       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 39. Manufacturer's safe operating pressure for hoses, pipes, valves, etc. are not exceeded.          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 40. Hoses are not used for hoisting or lowering tools.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 41. All hoses > 1/2-inch diameter have safety device at source to reduce pressure upon hose failure. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 42. Airless spray guns have required safety devices installed.                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 43. Blast cleaning nozzles are equipped with operating valves, which are held open manually.         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 44. Supports are provided for mounting nozzles when not in use.                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 45. Air receiver drains, handholes, and manholes are easily accessible.                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 46. Air receivers are equipped with drainpipes and valves for removal of accumulated oil and water.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 47. Air receivers are completely drained at required intervals.                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 48. Air receivers are equipped with indicating pressure gauges.                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 49. Safety, indicating, and controlling devices are installed as required.                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 50. Safety valves are tested frequently and at regular intervals to assure good operating condition. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



**SECTION 2 (continued)****Yes   No   N/A   N/O****LIQUID FUEL-POWERED TOOLS (3.2.5)**

51. Liquid fuel-powered tools are stopped when refueling, servicing, or maintaining.  
Liquid fuels are stored, handled, and transported in accordance with SOP HS-21  
Liquid fuel-powered tools are used in confined spaces in accordance with SOP HS-17.  
Safe operating pressures of hoses, valves, pipes, filters, and other fittings are not exceeded.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**POWDER-ACTUATED TOOLS (3.2.6)**

- Only trained employee operates powder-actuated tools.  
Powder-actuated tools are not loaded until just prior to intended firing time.  
Tools are not pointed at any employee at any time.  
Hands are kept clear of open barrel end.  
Loaded tools are not left unattended.  
Fasteners are not driven into very hard or brittle materials.  
Fasteners are not driven into easily penetrated materials unless suitable backing is provided.  
Fasteners are not driven into spalled areas.  
Powder-actuated tools are not used in an explosive or flammable atmosphere.  
All tools are used with correct shields, guards, or attachments recommended by manufacturer.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**JACKING TOOLS (3.2.7)**

- Rated capacities are legibly marked on jacks and not exceeded.  
Jacks have a positive stop to prevent over-travel.  
The base of jacks are blocked or cribbed to provide a firm foundation, when required.  
Wood blocks are placed between the cap and load to prevent slippage, when required.  
After load is raised, it is cribbed, blocked, or otherwise secured immediately.  
Antifreeze is used when hydraulic jacks are exposed to freezing temperatures.  
All jacks are properly lubricated.  
Jacks are inspected as required.  
Repair or replacement parts are examined for possible defects.  
Jacks not working properly are removed from service and repaired or replaced.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**HAND TOOLS (3.2.8)**

- Wrenches are not used when jaws are sprung to the point of slippage.  
Impact tools are kept free of mushroomed heads.  
Wooden handles of tools are kept free of splinters or cracks and are tightly fitted in tool.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



### SECTION 3

**Complete this section for all items checked "No" in Sections 1 or 2. Deficient items must be corrected in a timely manner.**

[illegible]

**Auditor:** \_\_\_\_\_ **Project Manager:** \_\_\_\_\_



## **Attachment 6**

### **CH2M HILL Health and Safety Plan**

#### **Behavior Based Loss Prevention System Forms**

**Activity Hazard Analysis**

**Pre-Task Safety Plans**

**Loss Prevention Observation**

**Incident Report and Investigation**



Activity Hazard Form	
Activity:	Date:
	Project:
Description of the work:	Site Supervisor:
	Site Safety Officer:
	Review for latest use: Before the job is performed.

[illegible]



Work Tasks	Identify & Analyze the Hazards	Identify Hazard Controls



[illegible]



**PRINT**

**SIGNATURE**

**Supervisor Name:**

\_\_\_\_\_

\_\_\_\_\_

**Date/Time:** \_\_\_\_\_

**Safety Officer Name:**

\_\_\_\_\_

\_\_\_\_\_

**Date/Time:** \_\_\_\_\_

**Employee Name(s):**

\_\_\_\_\_

\_\_\_\_\_

**Date/Time:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Date/Time:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Date/Time:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Date/Time:** \_\_\_\_\_

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**Date/Time:** \_\_\_\_\_

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**Date/Time:** \_\_\_\_\_

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**Date/Time:** \_\_\_\_\_

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**Date/Time:** \_\_\_\_\_

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**Date/Time:** \_\_\_\_\_

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\_\_\_\_\_

**Date/Time:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Date/Time:** \_\_\_\_\_



Project: \_\_\_\_\_ Location: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor: \_\_\_\_\_ Emergency Number(s): \_\_\_\_\_

**Brief Job Descriptions:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**List Specific Tasks for the Jobs (Match number from above).**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Tools/Equipment required for Tasks, (ladders, scaffolds, fall protection, cranes/rigging, heavy equipment, power tools) match number from above:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Potential H&S Hazards, including chemical, physical, safety, biological and environmental (Check all that apply and review exposures as they will be encountered in the tasks above):**

<input type="checkbox"/> Chemical burns/contact	<input type="checkbox"/> Trench, excavations, cave-ins	<input type="checkbox"/> Ergonomics
<input type="checkbox"/> Pressurized lines/equipment	<input type="checkbox"/> Overexertion	<input type="checkbox"/> Chemical splash
<input type="checkbox"/> Thermal burns	<input type="checkbox"/> Pinch points	<input type="checkbox"/> Poisonous plants/insects
<input type="checkbox"/> Electrical	<input type="checkbox"/> Cuts/abrasions	<input type="checkbox"/> Eye hazards/flying projectile
<input type="checkbox"/> Weather conditions	<input type="checkbox"/> Spills	<input type="checkbox"/> Inhalation hazard
<input type="checkbox"/> Heights/fall > 6'	<input type="checkbox"/> Overhead Electrical hazards	<input type="checkbox"/> Heat/cold stress
<input type="checkbox"/> Noise	<input type="checkbox"/> Elevated loads	<input type="checkbox"/> Water/drowning hazard
<input type="checkbox"/> Explosion/fire	<input type="checkbox"/> Slips, trip and falls	<input type="checkbox"/> Heavy equipment
<input type="checkbox"/> Radiation	<input type="checkbox"/> Manual lifting	<input type="checkbox"/> Aerial lifts/platforms
<input type="checkbox"/> Confined space entry	<input type="checkbox"/> Welding/cutting	<input type="checkbox"/> Demolition

**Other Potential Hazards (Describe):**\_\_\_\_\_  
\_\_\_\_\_



**Hazard Control Measures (Check all that apply):**

<b>PPE</b> <input type="checkbox"/> Thermal/lined <input type="checkbox"/> Eye <input type="checkbox"/> Dermal/hand <input type="checkbox"/> Hearing <input type="checkbox"/> Respiratory <input type="checkbox"/> Reflective vests <input type="checkbox"/> Flotation device	<b>Protective Systems</b> <input type="checkbox"/> Sloping <input type="checkbox"/> Shoring <input type="checkbox"/> Trench box <input type="checkbox"/> Barricades <input type="checkbox"/> Competent person <input type="checkbox"/> Locate buried utilities <input type="checkbox"/> Daily inspections	<b>Fire Protection</b> <input type="checkbox"/> Fire extinguishers <input type="checkbox"/> Fire watch <input type="checkbox"/> Non-spark tools <input type="checkbox"/> Grounding/bonding <input type="checkbox"/> Intrinsically safe equipment	<b>Electrical</b> <input type="checkbox"/> Lockout/tagout <input type="checkbox"/> Grounded <input type="checkbox"/> Panels covered <input type="checkbox"/> GFCI/extension cords <input type="checkbox"/> Power tools/cord inspected
<b>Fall Protection</b> <input type="checkbox"/> Harness/lanyards <input type="checkbox"/> Adequate anchorage <input type="checkbox"/> Guardrail system <input type="checkbox"/> Covered opening <input type="checkbox"/> Fixed barricades <input type="checkbox"/> Warning system	<b>Air Monitoring</b> <input type="checkbox"/> PID/FID <input type="checkbox"/> Detector tubes <input type="checkbox"/> Radiation <input type="checkbox"/> Personnel sampling <input type="checkbox"/> LEL/O2 <input type="checkbox"/> Other	<b>Proper Equipment</b> <input type="checkbox"/> Aerial lift/ladders/scaffolds <input type="checkbox"/> Forklift/ Heavy equipment <input type="checkbox"/> Backup alarms <input type="checkbox"/> Hand/power tools <input type="checkbox"/> Crane w/current inspection <input type="checkbox"/> Proper rigging <input type="checkbox"/> Operator qualified	<b>Welding &amp; Cutting</b> <input type="checkbox"/> Cylinders secured/capped <input type="checkbox"/> Cylinders separated/upright <input type="checkbox"/> Flash-back arrestors <input type="checkbox"/> No cylinders in CSE <input type="checkbox"/> Flame retardant clothing <input type="checkbox"/> Appropriate goggles
<b>Confined Space Entry</b> <input type="checkbox"/> Isolation <input type="checkbox"/> Air monitoring <input type="checkbox"/> Trained personnel <input type="checkbox"/> Permit completed <input type="checkbox"/> Rescue	<b>Medical/ER</b> <input type="checkbox"/> First-aid kit <input type="checkbox"/> Eye wash <input type="checkbox"/> FA-CPR trained personnel <input type="checkbox"/> Route to hospital	<b>Heat/Cold Stress</b> <input type="checkbox"/> Work/rest regime <input type="checkbox"/> Rest area <input type="checkbox"/> Liquids available <input type="checkbox"/> Monitoring <input type="checkbox"/> Training	<b>Vehicle/Traffic</b> <input type="checkbox"/> Traffic control <input type="checkbox"/> Barricades <input type="checkbox"/> Flags <input type="checkbox"/> Signs
<b>Permits</b> <input type="checkbox"/> Hot work <input type="checkbox"/> Confined space <input type="checkbox"/> Lockout/tagout <input type="checkbox"/> Excavation <input type="checkbox"/> Demolition <input type="checkbox"/> Energized work	<b>Demolition</b> <input type="checkbox"/> Pre-demolition survey <input type="checkbox"/> Structure condition <input type="checkbox"/> Isolate area/utilities <input type="checkbox"/> Competent person <input type="checkbox"/> Hazmat present	<b>Inspections:</b> <input type="checkbox"/> Ladders/aerial lifts <input type="checkbox"/> Lanyards/harness <input type="checkbox"/> Scaffolds <input type="checkbox"/> Heavy equipment <input type="checkbox"/> Cranes and rigging	<b>Training:</b> <input type="checkbox"/> Hazwaste <input type="checkbox"/> Construction <input type="checkbox"/> Competent person <input type="checkbox"/> Task-specific (THA) <input type="checkbox"/> Hazcom

Field Notes: \_\_\_\_\_

Supervisor signature: \_\_\_\_\_

Date: \_\_\_\_\_







Project: _____	Supervisor: _____	Date: _____
Task/Operation Observed: _____ _____ _____		Job Title of Worker Observed: _____ _____
Background Information/comments: _____ _____ _____		Task Hazard Analysis completed for task (Y/N): _____
<b>Positive Observations/Safe Work Procedures</b> 1. _____ 2. _____ 3. _____ 4. _____		
<b>Questionable Activity/Unsafe Condition Observed</b> 1. _____ 2. _____ 3. _____		
<b>Observed Worker's Comment(s)</b> 1. _____ 2. _____ 3. _____ 4. _____		
<b>Supervisor's Corrective Actions Taken:</b> 1. _____ 2. _____ 3. _____ 4. _____		



# CH2MHILL

## Loss Investigation Report Form

---

### Employer Information

Company Name: \_\_\_\_\_

Project Name: \_\_\_\_\_ Project Number: \_\_\_\_\_

Project Location: \_\_\_\_\_

CHIL Project? Yes ☐ No ☐

Task Location: \_\_\_\_\_

Job Assignment: \_\_\_\_\_ Business Group: \_\_\_\_\_

Preparer's Name: \_\_\_\_\_ Preparer's Employee Number: \_\_\_\_\_

### Near Loss Incident Specific Information

Date of Incident: \_\_\_\_\_ Time of Incident: \_\_\_\_\_ a.m./p.m.

Location of incident:

☐ Company premises

☐ Field

☐ In Transit

☐ Other: \_\_\_\_\_

Address where the incident occurred: \_\_\_\_\_

Equipment Malfunction : Yes ☐ No ☐

Activity was a Routine Task: Yes ☐ No ☐

Describe any property damage: \_\_\_\_\_

Specific activity the employee was engaged in when the incident occurred: \_\_\_\_\_

All equipment, materials, or chemicals the employee was using when the incident occurred: \_\_\_\_\_



Describe the specific incident and how it occurred:

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Describe how this incident may have been prevented:

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Contributing Factors (Describe in detail why incident occurred):

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Date employer notified of incident: \_\_\_\_\_ To whom reported: \_\_\_\_\_

**Witness Information (First Witness)**

Name: \_\_\_\_\_

Employee Number (for CH2M HILL employees): \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

Zip Code : \_\_\_\_\_

Phone: \_\_\_\_\_

**Witness Information (Second Witness)**

Name: \_\_\_\_\_

Employee Number (for CH2M HILL employees): \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

Zip Code: \_\_\_\_\_

Phone : \_\_\_\_\_

Additional information or comments: \_\_\_\_\_

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**COMPLETE ROOT CAUSE ANALYSIS FORM**



# Root Cause Analysis Form

Root Cause Analysis (RCA)							
Lack of skill or knowledge Lack of or inadequate operational procedures or work standards Inadequate communication of expectations regarding procedures or work standards Inadequate tools or equipment				Correct way takes more time and/or requires more effort Short cutting standard procedures is positively reinforced or tolerated Person thinks there is no personal benefit to always doing the job according to standards Uncontrollable			
RCA #	Solution(s): How to Prevent Loss From Occurring	RC <sup>1</sup>	CF <sup>2</sup>	Corrective Action Lead	Due Date	Completion Date	Date Verified

<sup>1</sup> RC = Root Cause; <sup>2</sup> CF = Contributing Factors (check which applies)

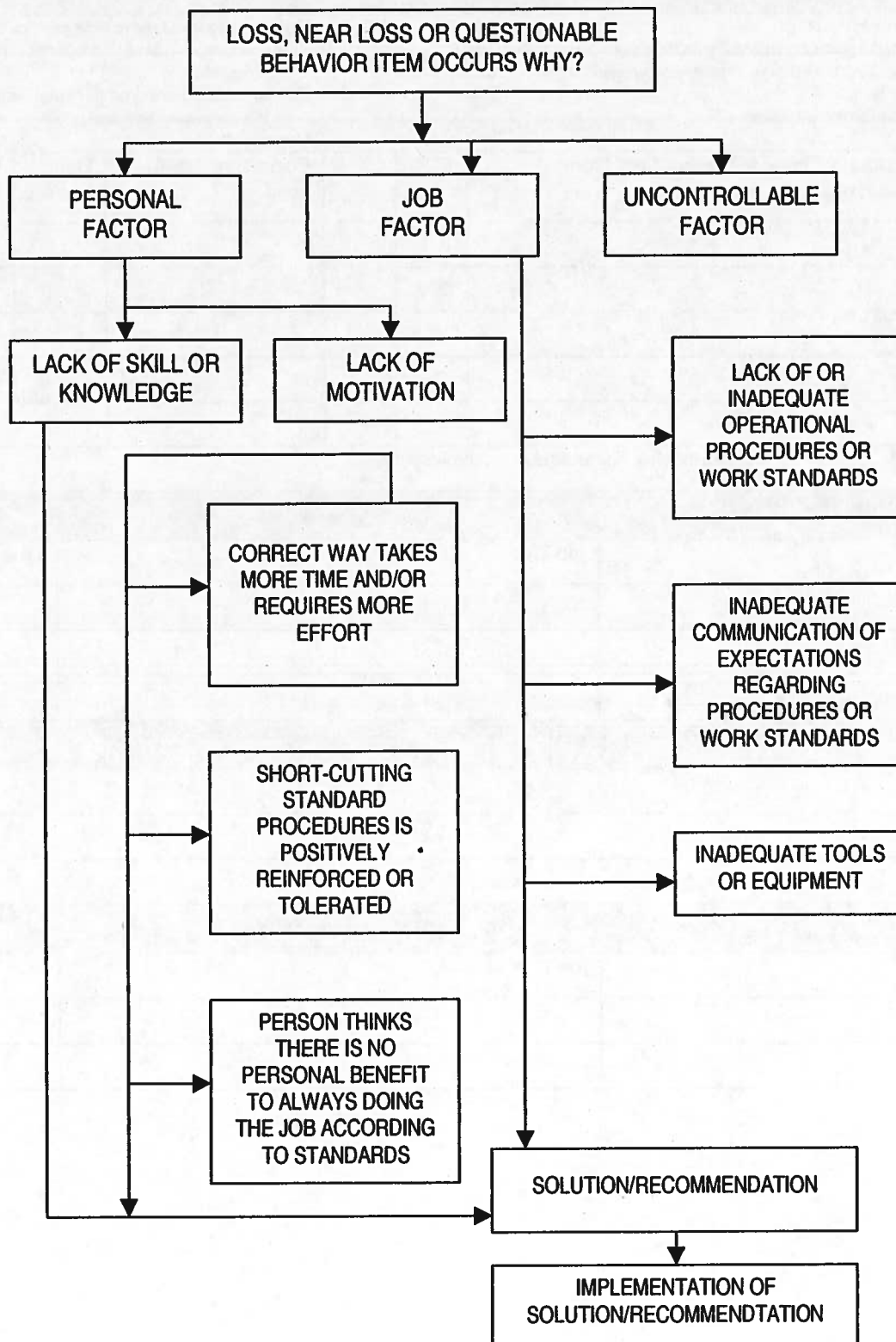
Investigation Team Members		
Name	Job Title	Date

Results of Solution Verification and Validation

Reviewed By		
Name	Job Title	Date



## Root Cause Analysis Flow Chart





## **Determination of Root Cause(s)**

For minor losses or near losses the information may be gathered by the supervisor or other personnel immediately following the loss. Based on the complexity of the situation, this information may be all that is necessary to enable the investigation team to analyze the loss, to determine the root cause, and to develop recommendations. More complex situations may require the investigation team to revisit the loss site or re-interview key witnesses to obtain answers to questions that may arise during the investigation process.

Photographs or videotapes of the scene and damaged equipment should be taken from all sides and from various distances. This point is especially important when the investigation team will not be able to review the loss scene.

The investigation team must use the Root Cause Analysis Flow Chart to assist in identifying the root cause(s) of a loss. Any loss may have one or more "root causes" and "contributing factors". The "root cause" is the primary or immediate cause of the incident, while a "contributing factor" is a condition or event that contributes to the incident happening, but is not the primary cause of the incident. Root causes and contributing factors that relate to the *person* involved in the loss, his or her peers, or the supervisor should be referred to as "personal factors". Causes that pertain to the *system* within which the loss or injury occurred should be referred to as "job factors".

### **Personal Factors**

Lack of skill or knowledge

Correct way takes more time and/or requires more effort

Short-cutting standard procedures is positively reinforced or tolerated

Person thinks that there is no personal benefit to always doing the job according to standards

### **Job Factors**

Lack of or inadequate operational procedures or work standards.

Inadequate communication of expectations regarding procedures or standards

Inadequate tools or equipment

The root cause(s) could be any one or a combination of these seven possibilities or some other "uncontrollable factor". In the vast majority of losses, the root cause is very much related to one or more of these seven factors. Uncontrollable factors should be used rarely and only after a thorough review eliminates "all" seven other factors.



# Incident Report Form

## Fax completed form to:

425.462.5957

CH2M HILL Seattle Office

Attention: Corporate HS&E Department

## Type of Incident (Select at least one)

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Injury/Illness             | <input type="checkbox"/> Property Damage | <input type="checkbox"/> Spill/Release |
| <input type="checkbox"/> Environmental/Permit Issue | <input type="checkbox"/> Near Miss       | <input type="checkbox"/> Other         |

## General Information (Complete for all incident types)

Preparer's Name: \_\_\_\_\_ Preparer's Employee Number: \_\_\_\_\_  
Date of Report: \_\_\_\_\_ Date of Incident: \_\_\_\_\_ Time of Incident: \_\_\_\_\_ am/pm

## Type of Activity (Provide activity being performed that resulted in the incident)

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Asbestos Work                     | <input type="checkbox"/> Excavation Trench-Haz Waste | <input type="checkbox"/> Other (Specify) _____     |
| <input type="checkbox"/> Confined Space Entry              | <input type="checkbox"/> Excavation Trench-Non Haz   |  |
| <input type="checkbox"/> Construction Mgmt- Haz Waste      | <input type="checkbox"/> Facility Walk Through       | <input type="checkbox"/> Process Safety Management |
| <input type="checkbox"/> Construction Mgmt - Non-Haz Waste | <input type="checkbox"/> General Office Work         | <input type="checkbox"/> Tunneling                 |
| <input type="checkbox"/> Demolition                        | <input type="checkbox"/> Keyboard Work               | <input type="checkbox"/> Welding                   |
| <input type="checkbox"/> Drilling-Haz Waste                | <input type="checkbox"/> Laboratory                  | <input type="checkbox"/> Wetlands Survey           |
| <input type="checkbox"/> Drilling-Non Haz Waste            | <input type="checkbox"/> Lead Abatement              | <input type="checkbox"/> Working from Heights      |
| <input type="checkbox"/> Drum Handling                     | <input type="checkbox"/> Motor Vehicle Operation     | <input type="checkbox"/> Working in Roadways       |
| <input type="checkbox"/> Electrical Work                   | <input type="checkbox"/> Moving Heavy Object         | <input type="checkbox"/> WWTP Operation            |

## Location of Incident (Select one)

- ☐ Company Premises (CH2M HILL Office: \_\_\_\_\_)
- ☐ Field (Project #: \_\_\_\_\_ Project/Site Name: \_\_\_\_\_ Client: \_\_\_\_\_)
- ☐ In Transit (Traveling from: \_\_\_\_\_ Traveling to: \_\_\_\_\_)
- ☐ At Home

## Geographic Location of Incident (Select region where the incident occurred)

- |                                    |                                    |   |
|------------------------------------|------------------------------------|---|
| <input type="checkbox"/> Northeast | <input type="checkbox"/> Southwest | <input type="checkbox"/> Asia Pacific       |
| <input type="checkbox"/> Southeast | <input type="checkbox"/> Corporate | <input type="checkbox"/> Europe Middle East |
| <input type="checkbox"/> Northwest | <input type="checkbox"/> Canadian  | <input type="checkbox"/> Latin America      |

If a CH2M HILL subcontractor was involved in the incident, provide their company name and phone number: \_\_\_\_\_

Describe the Incident (Provide a brief description of the incident): \_\_\_\_\_

## Injured Employee Data (Complete for Injury/Illness incidents only)

### If CH2M HILL employee injured

Employee Name: \_\_\_\_\_ Employee Number: \_\_\_\_\_

### If CH2M HILL Subcontractor employee injured

Employee Name: \_\_\_\_\_ Company: \_\_\_\_\_



### **Injury Type**

- ☐ Allergic Reaction
- ☐ Amputation
- ☐ Asphyxia
- ☐ Bruise/Contusion/Abrasion
- ☐ Burn (Chemical)
- ☐ Burn/Scald (Heat)
- ☐ Cancer
- ☐ Carpal Tunnel
- ☐ Concussion
- ☐ Cut/Laceration
- ☐ Dermatitis
- ☐ Dislocation

- ☐ Electric Shock
- ☐ Foreign Body in eye
- ☐ Fracture
- ☐ Freezing/Frost Bite
- ☐ Headache
- ☐ Hearing Loss
- ☐ Heat Exhaustion
- ☐ Hernia
- ☐ Infection
- ☐ Irritation to eye
- ☐ Ligament Damage

- ☐ Multiple (Specify) \_\_\_\_\_

- ☐ Muscle Spasms
- ☐ Other (Specify) \_\_\_\_\_

- ☐ Poisoning (Systemic)
- ☐ Puncture
- ☐ Radiation Effects
- ☐ Strain/Sprain
- ☐ Tendonitis
- ☐ Wrist Pain

### **Part of Body Injured**

- ☐ Abdomen
- ☐ Ankle(s)
- ☐ Arms (Multiple)
- ☐ Back
- ☐ Blood
- ☐ Body System
- ☐ Buttocks
- ☐ Chest/Ribs
- ☐ Ear(s)
- ☐ Elbow(s)
- ☐ Eye(s)
- ☐ Face
- ☐ Finger(s)
- ☐ Foot/Feet

- ☐ Hand(s)
- ☐ Head
- ☐ Hip(s)
- ☐ Kidney
- ☐ Knee(s)
- ☐ Leg(s)
- ☐ Liver
- ☐ Lower (arms)
- ☐ Lower (legs)
- ☐ Lung
- ☐ Mind

- ☐ Multiple (Specify) \_\_\_\_\_

- ☐ Neck
- ☐ Nervous System
- ☐ Nose
- ☐ Other (Specify) \_\_\_\_\_

- ☐ Reproductive System
- ☐ Shoulder(s)
- ☐ Throat
- ☐ Toe(s)
- ☐ Upper Arm(s)
- ☐ Upper Leg(s)
- ☐ Wrist(s)

### **Nature of Injury**

- ☐ Absorption
- ☐ Bite/Sting/Scratch
- ☐ Cardio-Vascular/Respiratory System Failure
- ☐ Caught In or Between
- ☐ Fall (From Elevation)
- ☐ Fall (Same Level)
- ☐ Ingestion

- ☐ Inhalation
- ☐ Lifting
- ☐ Mental Stress
- ☐ Motor Vehicle Accident
- ☐ Multiple (Specify) \_\_\_\_\_

- ☐ Other (Specify) \_\_\_\_\_

- ☐ Overexertion
- ☐ Repeated Motion/Pressure
- ☐ Rubbed/Abraded
- ☐ Shock
- ☐ Struck Against
- ☐ Struck By
- ☐ Work Place Violence

Initial Diagnosis/Treatment Date: \_\_\_\_\_

### **Type of Treatment**

- ☐ Admission to hospital/medical facility
- ☐ Application of bandages
- ☐ Cold/Heat Compression/Multiple Treatment
- ☐ Cold/Heat Compression/One Treatment
- ☐ First Degree Burn Treatment
- ☐ Heat Therapy/Multiple treatment
- ☐ Multiple (Specify) \_\_\_\_\_

- ☐ Heat Therapy/One Treatment
- ☐ Non-Prescriptive medicine
- ☐ None
- ☐ Observation
- ☐ Other (Specify) \_\_\_\_\_

- ☐ Prescription- Multiple dose

- ☐ Prescription- Single dose
- ☐ Removal of foreign bodies
- ☐ Skin Removal
- ☐ Soaking therapy- Multiple Treatment
- ☐ Soaking Therapy- One Treatment
- ☐ Stitches/Sutures
- ☐ Tetanus
- ☐ Treatment for infection
- ☐ Treatment of 2<sup>nd</sup> /3<sup>rd</sup> degree burns
- ☐ Use of Antiseptics – multiple treatment
- ☐ Use of Antiseptics – single treatment
- ☐ Whirlpool bath therapy/multiple treatment
- ☐ Whirlpool therapy/single treatment
- ☐ X-rays negative
- ☐ X-rays positive/treatment of fracture



Number of days doctor required employee to be off work: \_\_\_\_\_  
Number of days doctor restricted employee's work activity: \_\_\_\_\_  
Equipment Malfunction : Yes ☐ No ☐ Activity was a Routine Task: Yes ☐ No ☐  
Describe how you may have prevented this injury: \_\_\_\_\_  
\_\_\_\_\_

**Physician Information**

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_  
Zip Code: \_\_\_\_\_  
Phone: \_\_\_\_\_

**Hospital Information**

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_  
Zip Code: \_\_\_\_\_  
Phone: \_\_\_\_\_

**Property Damage** (Complete for Property Damage incidents only)

Property Damaged: \_\_\_\_\_ Property Owner: \_\_\_\_\_  
Damage Description: \_\_\_\_\_  
Estimated Amount: \$ \_\_\_\_\_

**Spill or Release** (Complete for Spill/Release incidents only)

Substance (attach MSDS): \_\_\_\_\_ Estimated Quantity: \_\_\_\_\_  
Facility Name, Address, Phone No.: \_\_\_\_\_  
Did the spill/release move off the property where work was performed?: \_\_\_\_\_  
Spill/Release From: \_\_\_\_\_ Spill/Release To: \_\_\_\_\_

**Environmental/Permit Issue** (Complete for Environmental/Permit Issue incidents only)

Describe Environmental or Permit Issue: \_\_\_\_\_  
Permit Type: \_\_\_\_\_  
Permitted Level or Criteria (e.g., discharge limit): \_\_\_\_\_  
Permit Name and Number (e.g., NPDES No. ST1234): \_\_\_\_\_  
Substance and Estimated Quantity: \_\_\_\_\_  
Duration of Permit Exceedence: \_\_\_\_\_

**Verbal Notification** (Complete for all incident types)(Provide names, dates and times)

CH2M HILL Personnel Notified: \_\_\_\_\_  
Client Notified: \_\_\_\_\_

**Witnesses** (Complete for all incident types)

**Witness Information (First Witness)**

Name: \_\_\_\_\_  
Employee Number (CH2M HILL): \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_  
Zip Code: \_\_\_\_\_  
Phone: \_\_\_\_\_

**Witness Information (Second Witness)**

Name: \_\_\_\_\_  
Employee Number (CH2M HILL): \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_  
Zip Code: \_\_\_\_\_  
Phone : \_\_\_\_\_

Additional Comments: \_\_\_\_\_  
\_\_\_\_\_



# NEAR LOSS INVESTIGATION FORM

## Employer Information

Company Name: \_\_\_\_\_

Project Name: \_\_\_\_\_ Project Number: \_\_\_\_\_

Project Location: \_\_\_\_\_

CHIL Project? Yes ☐ No ☐

Task Location: \_\_\_\_\_

Job Assignment: \_\_\_\_\_ Business Group: \_\_\_\_\_

Preparer's Name: \_\_\_\_\_ Preparer's Employee Number: \_\_\_\_\_

## Near Loss Incident Specific Information

Date of Incident: \_\_\_\_\_ Time of Incident: \_\_\_\_\_ a.m./p.m.

Location of incident:

☐ Company premises ☐ Field ☐ In Transit ☐ Other: \_\_\_\_\_

Address where the incident occurred: \_\_\_\_\_

Equipment Malfunction : Yes ☐ No ☐ Activity was a Routine Task: Yes ☐ No ☐

Describe any property damage: \_\_\_\_\_

Specific activity the employee was engaged in when the incident occurred:

\_\_\_\_\_

\_\_\_\_\_

All equipment, materials, or chemicals the employee was using when the incident occurred:

\_\_\_\_\_

\_\_\_\_\_

Describe the specific incident and how it occurred:

\_\_\_\_\_

\_\_\_\_\_

Describe how this incident may have been prevented:

\_\_\_\_\_

\_\_\_\_\_

Contributing Factors (Describe in detail why incident occurred):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Date employer notified of incident: \_\_\_\_\_ To whom reported: \_\_\_\_\_



**NEAR LOSS INVESTIGATION FORM**

**Witness Information (First Witness)**

Name: \_\_\_\_\_  
Employee Number (for CH2M HILL employees): \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_  
Zip Code : \_\_\_\_\_  
Phone: \_\_\_\_\_

**Witness Information (Second Witness)**

Name: \_\_\_\_\_  
Employee Number (for CH2M HILL employees): \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_  
Zip Code: \_\_\_\_\_  
Phone : \_\_\_\_\_

Additional information or  
comments: \_\_\_\_\_  
\_\_\_\_\_



**Attachment 7**

**Applicable Material Safety Data Sheets  
(available onsite)**



## **Attachment 8**

### **Subcontractor H&S Plans/Procedures (available onsite)**